

Escalating Ecocide In the Kudremukh National Park



Investigative Report by

**Nagarika Seva Trust and
Institute for Natural Resources Conservation,
Education, Research and Training**

June 2001

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Escalating Ecocide in the Kudremukh National Park

INVESTIGATIVE REPORT

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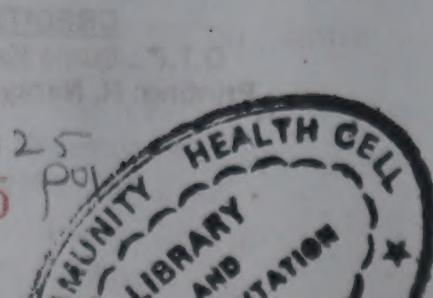
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4. Institute of Bird Studies & Natural History, Rishi Valley
5. Ornithological Society of India
6. Birdwatcher's Field Club of Bangalore
7. Student's Movement for Preservation of Environment
8. SEEK Foundation
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19. NCPNR, Dharwad
20. Uttara Kannada Parisara Samrakshana Samithi

FOREWORD

According to studies sponsored by the UN, fresh water biodiversity is increasingly threatened by unsustainable development. Global water withdrawal by people for domestic, industrial and agricultural purposes have grown more than 35 times during the past two centuries, and a further increase in consumption by 2025 will result in severe water stress for upto 1,100 million people. Large population of India and China will be severely affected. Recent analysis have confirmed that 70% of all our fresh water resources have been contaminated by a deadly combination of Industrial pollution, domestic sewage and pesticides. Karnataka has the largest arid land in the country after Rajasthan.

The latest Asian Environment Report by ADB has confirmed that 90% of the original wildlife habitats in Asia have been destroyed. Karnataka has vast areas of the pristine Western Ghats, which has been identified as one of the 18 'hotspots' of global biodiversity. The Western Ghats are also part of 'Global 200' regions identified by WWF for concentrating conservation efforts. A number of plant and animal farms are evolved and confined to Western Ghats and therefore Western Ghats are also known as "the Cradle of Evolution" and "the Crucible of Endemism".

Nestled in the heart of the Western Ghats is the Kudremukh National Park (KNP), which is known as the third wettest Region in the world, with the annual rain fall exceeding 6000 mm. Incidentally three major rivers viz. Tunga, Bhadra and Netravathi originate from KNP. Unfortunately, the National Park also houses the Kudremukh Iron Ore Company Limited, which extracts upto 10 million tonnes of iron ore per annum from the National Park area. The mining lease expired on 24th July 1999, but despite continuing protests and public outcry a temporary working permission has been extended upto 24th July 2001. Recent Newspaper reports have claimed that the authorities are all set to renew the licence for a further period of 20 years.

We have carried out extensive investigations to understand the escalating impact of the mining on the Bhadra river system, and the flora and fauna of the National Park. Relentless efforts were made since 1998, by the investigating team to collect over 1000 pages of documents. Some of the documents could be procured only after the intervention of the Chief Minister of Karnataka.

In this report we have included our preliminary findings. The cascading effect of deforestation and other unsustainable activities like mining on Western Ghats has resulted in siltation of reservoirs and pollution of river systems. This is evident from the very fact that in order to augment the scarce water sources of the State, the government has recently procured a loan of Rs.6000 crores to desilt lakes, reservoirs and tanks.

In this report we have compiled the effects of mining by KIOCL on the river ecosystem, and the flora and fauna of KNP. We have also extensively dealt with the subject of the violation of the laws of the land by KIOCL.

With this report we wish to increase the awareness of the general public, consolidate the conservation efforts and add momentum to the legitimate struggles of people, various organisations and individuals, who have been relentlessly campaigning against the escalating ecocidal mining activities in KNP.

Introduction

Environmentalists and wildlife lovers all over the state have been particularly concerned over the escalating ecological disaster in the Kudremukh National Park, by the mining activities of the Kudremukh Iron Ore Company Limited (KIOCL).

Though the mining lease ended in July 1999, the lease was extended initially for one year by giving a temporary working permission under Section 2 of the Forest conservation act and later by one more year by the Central Government. In any case even this 2 year extended period of lease will come to an end on 24th July 2001. The company (KIOCL) is lobbying hard to get the lease renewed for a further period of 20 years.

KIOCL has left a legacy of disrespect to the constitution of India, and to the numerous laws of the land. It has also shown scant respect to the many directions given by the Forest Department, the Irrigation Department, the Industries Department and the Ministry of Environment & Forests. The orders of the Supreme Court have been given a quietus by the KIOCL under one pretext or the other.

Over the past decade environmental groups have been investigating jointly or severally into the misdemeanors of the KIOCL. The environmental groups have not only highlighted the ecocide being perpetuated by the company, from time to time, but also brought out the serious nature of the ecological disaster that was ushered in due to the mining activities so far. These groups have also highlighted the incalculable irreversible damage which has been caused to the environment and its potential to completely ruin the ecosystem if the lease is renewed, as envisaged by the company.

The environment groups are alarmed by the newspaper reports (Mr. Ambarish Mukherjee in Business Line, Bangalore, June 1, 2001) that the mining lease of Kudremukh Iron Ore Company Ltd., will be renewed for 20 years following an environmental clearance from the Ministry of Environment and Forest, New Delhi, and that a draft prepared for such renewal is ready with the Law Ministry and the Notification of renewal will be issued soon and the most recent information of deletion of the Mining Lease area from the KNP. The environment groups have come together and have exchanged notes, documentary evidence and findings and have prepared this investigative report.

This investigative report has been divided into many chapters highlighting the flagrant violations of the company. A summary and recommendations of this report will be submitted to the MoEF, the Chief Minister, and the Ministry for Environment and Forests along with a Memorandum to review the proposed renewal, in the light of our investigations and findings.

The export of Iron Ore by India has come down by 10% in 1998-99, due to lesser demands from Japan.

Chapter I

I. FLAGRANT VIOLATIONS OF THE LAWS OF THE LAND, by the Kudremukh Iron Ore Company Limited (KIOCL)

Our investigations have revealed that the KIOCL has been blatantly violating the provisions contained in the following acts, duly enacted by the Central and State Governments.

- 1) The Forest (Conservation) Act 1980.
- 2) The Wildlife (Protection) Act 1972.
- 3) The Environment (Protection) Act 1986.
- 4) The Water (Prevention and Control of Pollution) Act 1978.
- 5) The Explosives Act, 1872.
- 6) The Karnataka Irrigation Act 1964.

The investigators have gone in depth and examined the correspondence with the concerned authorities which have revealed that the KIOCL has left behind a legacy of proven bad track record and utter disregard for the above mentioned acts.

Some instances are narrated below :

a) Violation of section 4(1) of the Karnataka Irrigation Act 1964.

The KIOCL, ought to have obtained specific clearance from the Government. The letter from Chief Engineer, WRDO to the Secretary Irrigation Department dated 9.3.1991 reproduced below is self explanatory.

"2. M/s. Kudremukh Iron Ore Co. Ltd., have not obtained specific clearance of Government of Karnataka in Irrigation Department for construction of the existing Lakhya Reservoir. The Section 4 (1) of the Karnataka Irrigation Act 1963 stated as follows :

"No person shall construct, control or maintain wholly or partly any reservoir, tank, anicut, bhandara, pond, spring pond, canal, field channel, Talaparige, channel or aqueduct except with the previous sanction of the State Government or such authorities as may be authorised by the State Government in this behalf and subject to such conditions as the State Government or such authority may impose".

M/s. Kudremukh Iron Ore Co. Ltd., have not followed the above provision of the Karnataka Irrigation Act while constructing the existing Lakhya reservoir. However, the Secretary, M/s. Kudremukh Iron Ore Co. Ltd., is now requesting Ex-post - facto approval of Government of Karnataka for the construction - of the existing Lakhya Dam and for impounding and use of water from the Lakhya river.

b) Violation of section 3c-2 of the Karnataka Irrigation Act (levy of Betterment contribution) Act, which reads as follows :

3c (2) Levy and determination of water rate for use of water for purposes other than agriculture :-

(1) Where water is used from any irrigation work for any purpose other than agriculture, after obtaining necessary permission, there shall be levied a water rate as follows, namely :-

(a) If water is used for domestic purpose, rupees one hundred and fifty per million cubic feet of water;

(b) if water is used for any other purpose, and

(i) drawn from natural water ways, rivers or streams three hundred and fifty rupees per million cubic feet of water;

(ii) drawn from a canal, tank, reservoir, anicut, banchara, pond, kunta, talaparige and madugus, belonging to the Government, seven hundred rupees per million cubic feet of water;

Provided that, where water drawn for such canal, tank, reservoir, anicut, bandhara, pond, kunta, talaparige and madugus, then the water rate for the quantity of water so returned shall be limited to three hundred and fifty rupees per million cubic feet of water;

Provided further than, no water rate shall be levied for water used by an industry for a period of five years from the date of starting such industry.

However, the KIOCL has violated this section of the Act, by refusing to pay the water rates as demanded by the Chief Engineer, WRDO, in his letter No. WRD/MISC/THI to the Secretary, Irrigation Dept., on 9.12.1991.

ii) Government has stipulated levy of water rates for use of water other than irrigation for water drawn from the natural water ways, rivers or streams etc. Hence it is recommended that M/s. Kudremukh Iron Ore Co. Ltd., has to pay water rates for the water utilised from the inception at the prevailing water rates to be fixed by Government. A calculation sheet showing the year-wise amount payable to Government by M/s. Kudremukh Iron Ore Co. Ltd., for storing and utilising water from Lakhya Dam is enclosed (A rate of Rs. 350 / Mcft is considered for water utilised for non irrigation purpose as stated in G.O. No. PWD 89 NPC 85(p.II) dated 31.10.88). Accordingly, the total amount payable upto 1991-92 will Rs. 23.60 lakhs.

iii) **M/s. Kudremukh Iron Ore Co. Ltd., is only complying with the Standards fixed by the Karnataka State Pollution Control Board regarding suspended solids and Fe content. This has no correlation with the sediment lead discharged into the Bhadra river downstream.**

In the 27th meeting of the State Technical Advisory Committee (Soil Conservation) held on 29.8.89 it has been brought out by the Chief Engineer, Irrigation Central Zone, Munirabad that in view of the Kudremukh Iron Ore Works, siltation has increased in the Bhadra river below the Lakhya Dam. The committee had decided that the Director, Karnataka Engineering Research Station, Krishnarajanagar to prepare a Technical Report (based on the Sedimentation data bringing out the details collected by Water Resources Development Organisation and K.E.R.S.)

The Secretary, M/s. Kudremukh Iron Ore Co. Ltd., in his letter-dated 16.11.91 has assured to take up any remedial measures suggested by the Irrigation Department to arrest siltation, in order to prevent silt getting into Bhadra river, Kudremukh Iron Ore Co. Ltd., may have to explore the possibility of putting up as many smaller dams as possible in their leased area and recover the silt (Iron Ore) at the end of rainy season as is being done in 2 major valleys at present.

It may also desirable to stipulate a condition that Kudremukh Iron Ore Co. Ltd., should monitor every month water of Bhadra river at the entry and exit of their lease area to ensure that silt levels downstream is not exceeding the levels recorded at upstream. The results can be sent to W.R.D.O. every month.

The KIOCL is paying water cess, to the Pollution Control Board under the Water (Prevention and Control of Pollution) Act 1974, which is an act to provide for levy and collection of cess on water consumed by persons carrying on certain industries and local authorities, with a view to augment the resources of the Central Board and State Boards for prevention and control of water pollution."

The Chief Engineer concluded

In this context it has to be noted that the lease agreement signed on 24.7.69 between the Government of Mysore and NMDC Ltd. (later KIOCL) transferred to 1979 vide mining lease 909/69-70 dated 24th July 1969 which reads as follows :

The lessee/lessees shall pay the rent, water rate and royalties reserved by this lease at such times and in the manner provided in PART V and VI of these presents and shall also pay and discharge all taxes, rates, assessments and impositions whatsoever being in the nature of public demands which shall from time to time be charged assessed or imposed by the authority of the Central and State Governments upon or in respect of the premises and works of the lessee/lessees in common with other premises and works a like nature except demands for land revenues.

Lessees to pay rents, royalties, taxes, etc.

The KIOCL is trying to hoodwink the Irrigation authorities by refusing to pay the water rates as per the irrigation act, under the pretext that it is paying cess to the Pollution Control Board under the Water (Prevention and Control of Pollution Act). These two are separate Acts and the company ought to have honoured both the Acts. The company has continually refused to pay the water rates, even after repeated demands from the authorities, thereby violated the Irrigation Act. Even demands made by Executive Engineer, Bhadravathi, in his demand dated 24.7.98, was turned down by the company under the above pretext in its reply dated 1.10.98.

c) Violation of Sec. 2 of the Forest Conservation Act of 1980. The company has flagrantly violated Sec 2 of the Forest Conservation Act on several occasions. Some of the violations are narrated below :

i) The Deputy Conservator of Forests, Kudremukh Wildlife Division, Karkala, in her objections vide letter No. C3, CR/30 dated 30.06.2000 (Annexure) to the Deputy Commissioner and settlement officer, Chikmagalur, Mangalore and Udupi has clearly brought out the violation of Forest Conservation Act by the KIOCL as follows :

"The Lakhya dam which was built to collect tailings so as to avoid pollution of Bhadra river had already been filled to capacity in 1984. The company then went ahead illegally and raised the height of the Lakhya dam in the process violated the Forest Conservation Act. This illegal act lead to the further submergence of 340 Ha. of pristine shola forests area outside the area leased to the Company. In its present situation, this dam may be useful for 5-6 years only when it will be full to its capacity. Further mining would necessitate removal of impounded tailings or further increase in the height of Lakhya Dam or construction of another dam and further submergence of the forest area outside the mining site," concluded the DCF.

ii) The Principal Chief Conservator of Forests in this letter No. A5(B3/GFL.CR.231/92-93 dated 17.9.1997 to the Principal Secretary to the Government, Department of Forest, Ecology and Environment had brought the following facts to the notice of the Government and demanded prosecution of the KIOCL for the violation of the Government order as follows :

"M/s. Kudremukh Iron Ore Co. Ltd., have increased the height of Lakhya Dam submerging the additional forestland of 340 ha without obtaining the prior approval of Government of India. This is a clear case of violation of the Section 2 of the Forest Conservation act and it attracts penalty. The violation of the provisions of Forest (Conservation) Act 1980 has been brought to the notice of the Company, but the Company is not honouring the Government Orders and have not acted upon them. A chance of hearing was given to the Company and the Government of India was moved to accord expose facto approval. But, the Government of India in its letter dated 13-3-97 has asked the State Government to fix the responsibility for violation. In the present case the management of M/s. Kudremukh Iron Ore Co. Ltd., is responsible for the violation. Though the Company has been intimated and requested to pay the cost of normal & penal compensatory plantation of Rs. 3.06 crores, the Company has not paid the same. Also the Company is requested, to pay an amount of Rs. 5.00 crores for the

development of Kudremukh National Park in the Government Order when the forest area of Nellibedu was leased for prospecting of Iron Ore by the Company. The Company has hardly paid Rs. 1.00 crore. The Karnataka Cashew Development Corporation has raised plantations in areas falling within the National Park by investing huge amounts. Though the plantations are due for harvest, the Chief Wildlife Warden has not accorded the permission for extraction and the plantations in the national park will be retained. The Karnataka Cashew Development corporation is entitled to receive the cost on plantations to the tune of Rs. 3,31,17,203/. The Government decided to pay this amount after recovering the same from M/s. Kudremukh Iron Ore Company Ltd., as the raising of plantations have lead to development of the National Park. The Company had been requested to pay this amount through Demand Draft drawn in favour of Principal Chief Conservator of Forests, Bangalore, but, it is regretted that the Company has not responded inspite of several promises and phone calls to the company Secretary of M/s. Kudremukh iron Ore Company Ltd., This is a clear violation of the Government Order as the Company has failed to pay the amount.

In view of the above, the following actions are required to be initiated against the Company.

- 1. Prosecution of Management of the Company for violation of Forest (Conservation) Act by increasing the height of Lakhya Dam and submerging the additional forest area to the tune of 340 ha.**
- 2. Cancellation of the Mining Lease No. 909 as a penal action and not to renew the lease thereafter which will expire on 24-7-99.**
- 3. The Dam height is to be reduced to recover the additional forestland submerged to the extent of 340 ha.**
- 4. Recovery of cost of vegetation submerged due to increase in height of Lakhya Dam.**
- 5. Any other action the Government deems fit.**

However, before the lease is cancelled an opportunity of being heard needs to be given to the Company. In this connection the Government had already issued the show cause

notice to M/s. Kudremukh Iron Ore Company Ltd., in its letter dated 30-5-96 and the Company's reply dated 15-7-96 is received by the Government. Further, the Company has been issued the notice vide this office letter dated 5-5-97 which is self-explanatory and in response to this, the Company has replied vide its letter dated 20-5-97. Replies furnished by the Kudremukh Iron Ore Company Ltd., that no violation of the forest Rules has been committed and Company's request to withdraw the demand for payment of Rs. 3.06 crore towards the cost of normal/penal compensatory plantation (3 times to 340 ha. additional forest area sub-merged due to increase of Lakhya Dam height) cannot be accepted. Further, clarification asked by the Kudremukh Iron Ore Company Ltd., in its letter dated 30-5-97 has also been replied by this office letter dated 30-6-97.

Since, the Company has not paid the cost of compensatory afforestation of Rs. 3.06 crore and has also failed to pay Rs. 3.31 crore as explained above towards development of Kudremukh National Park, there is no need for further notice and the Company may be proceeded against straight way. Early action is requested in the matter." The PCCF concluded.

iii) The Chief Engineer upper Tunga Project, Shimoga dated 25.4.1998 to the Engineer-in-chief, WRDO, Bangalore, had remarked as follows : (while disposing off the application from KIOCL for building dam across Kachigehole)

"7) No action taken by the M/s. KIOCL in effecting compensatory afforestation as per Forest Conservation Act, are not forthcoming in the correspondence".

In reply the KIOCL had mentioned as follows "we have already taken up with the forest department to enumerate the trees which are going to be submerged and also seeking their clearance for the project"

The PCCF has contradicted this in his letter 12.9.97 and has even recommended prosecution of the company.

After obtaining the reply

The Chief Engineer had even remarked "Before according clearance from the department, KIOCL has to be insisted to take clearance from State Environment and

Ecology Department, and the KIOCL has to take compensatory afforestation as per Forest Conservation Act."

d) Violation of the Environment (Protection) Act 1986.

While according environmental clearance for expansion of KIOCL project, on 18.10.1993 and also granting approval for prospecting lease of 310 ha of forest land in one corner of the Kudremukh National Park (Nellibeedu deposit) on 30.5.94, the authorities and the company have not followed the procedures laid down in Notification I, S.O. 85(E) dated 27.01.92 and also notification II, S.O 60E dated 27 Jan 1994, under Environment Protection Act, 1986.

These two issues are clear violations of the Environment (Protection) Act 1986.

e) Violations of the Wildlife (Protection) Act 1972. Serious violations of the Wildlife (Protection) Act, have come to our notice during our investigations.

i) Kudremukh was declared as a National Park under sub section (1) of section 35 of wildlife (Protection) Act 1972, on 2.9.1987, which included five reserve forests.

Since the KIOCL, was a part of the Kudremukh National Park, vide section 20 of the Act, (bar on accrual of rights) all rights were acquired in, on or over the land comprised within the limits of the area specified in the notification, except by succession, testamentary or instate.

According to a case precedent wherein it has been said that an reserve forest area for which a preliminary notification has been made, will be de jure a National park for all non-forest purposes. [(Tarur Bharat Singh Vs Union of India, 1992 FLT 177 (SC)] i.e. a preliminary notified National park will be considered a deemed National park for all non-forest purposes.

Since the area under mining is a reserve forest, then it is a decided fact that for all pre-1991 notifications, the first notification shall be considered the final notification. (Wildlife Protection Act, 1972) for all non forest purposes.

The notification declaring "Kudremukh National Park" was issued on 2.9.1987, which included the following five reserve forests :

Name of the Reserve forest	Notified as a Reserve forest on
1) Andar Reserve Forest	15.01.1891
2) Naravi Reserve Forest	01.06.1900
3) Narasimha Parvatna Reserve Forest	01.03.1916
4) Tungabhadra Reserve Forest	07.07.1916 & 29.08.1914
5) South Bhadra Reserve Forest	29.08.1914

Since the area under mining is a notified reserve forest, it is a decided fact that for all pre-1991 notifications, the first notification shall be considered the final notification (Wildlife Protection Act) (per correspondence with Ashok Kumar of Wildlife Protection Society of India, New Delhi).

ii) Supreme Court in WP (C) No 337/95, dated 22.8.1997, the Hon'ble judges S.C. Agrawal and G.T. Nanavati, had ordered as follows :

Even though notification in respect of sanctuaries/national parks have been issued under action 18/35 in all States/Union Territories, further proceedings. As required under the Act i.e. issue of proclamation under section 21 and other steps on contemplated by the Act have not been taken. The concerned State Governments/Union territories are directed to issue the proclamation under section 21. In respect of the sanctuaries/national parks within two months and complete the process of determination of rights and stimulation of land or rights as contemplated by the Act within a period of one year.

As regards denotification of any area, which is included in a sanctuary/national park, it is directed that before placing the proposal before the Legislative Assembly the concerned State Governments shall refer the proposal to the Indian Board for Wild Life for its opinion and thereafter proposal shall be placed for consideration before the Legislative Assembly along with the opinion of the Indian Board for Wildlife.

iii) The Supreme Court in WP (C) No. 337/95 had given directions on 20.03.1999 to the State Governments to issue proclamation under section 21 of Wildlife (Protection) Act 1972.

In the order the Hon'ble judges S.C. Agrawal and S. Sagir Ahmed had observed as follows :

"As regard the State of Karnataka, an affidavit has been filed which shows that the forest settlement officers have been appointed and 10 weeks time is sought for issuing the proclamation (under section 21, of the Wildlife Protection Act, 1972). The time prayed for is allowed".

iv) From the above facts it is very clear that provisions of Wildlife Protection Act are applicable to Kudremukh National Park. Since the mining lease was to expire on 24, July 1999. The KIOCL had applied for extension of lease on 4.6.1998 to the State Government on 17.3.1999. The Chief Wildlife Warden had recommended to the Government for not extending the lease, beyond 24.7.1999. The CWW had expressed that the extension of lease will be a violation of the Wildlife Protection Act. But the State Government took shelter under the Forest Conservation Act (1980) and made its recommendation for extending the lease temporarily, based on a letter from PCCF, dated 3.7.1999, which ignored CWW's views. WLPA which should have been the act to be considered.

v) Surprisingly the CWW, PCCF (Wildlife) has changed his opinion more than once as is evident from the following correspondence :

In letter dated 03.09.1999 Chief Wildlife Warden (CWW) and Principal Chief Conservator of Forests PCCF (Wildlife), has observed as follows :

"Section 35 (6) of the Wildlife Protection Act, 1972 relates to actions consequent upon the Final notification of a National Park declared under Section 35 (4) of the said Act for Kudremukh National Park the Government have issued Notification so far only as per provisions contained in Section 35 (1) of the said Act stating its intention to constitute it as a National Park.

The Revenue Authorities have issued the proclamation under Section 35 (1) of the said Act and their report is awaited for the issue of the Final Notification of Kudremukh National Park. **Thus action under Section 35 (6) does to arise at this stage.**" The CWW concluded.

In essence the CWW, PCCF (Wildlife) opined that WPA does not apply to Kudremukh National Park, since the final notification has not been issued. However, he drastically changed his opinion, which was exactly the opposite, as can be made out from his orders dated 6.12.2000 and 7.12.2000 for removal of 781 trees, to facilitate relaying of slurry pipes (272 - trees inside the mine lease area and 509 trees - outside the lease area, but within the Kudremukh National Park).

Order dated 6.12.2000

"As authorised by the Government of Karnataka to the under signed and in provision to the section 33 of wildlife (protection) act of 1972, permission is hereby granted to fell the tree growth existing on the slurry pipeline running within the Kudremukh National Park."

This order is exactly the opposite to his own opinion dated 3.9.1999.

v) The solicitor General of India, Shri Harish Salve in his letter dated 18th July 2000 given the following direction to the Addl. Inspector General of Forests, (Wildlife) Ministry of Environment and Forests (MoEF) :

This has a reference to your letter 1st July, 2000 relating for the grant of permission to mining activity in National Parks and Sanctuaries.

Section 29 of the Wildlife Protection Act prohibits absolutely, the grant of any permission "by the State Government "or the Chief Wildlife Warden for any activity which damages the habitat of any wild animal within such sanctuary unless such activity is necessary for the better management of wildlife itself.

A similar prohibition in relation to National Parks is provided for under Section 35(6). Section 38 imposes the same restrictions on the powers of Central Government where it declares areas of the National Parks and Sanctuaries.

The context of granting renewal to lease in National Parks and Sanctuaries has to be viewed in this backdrop. In any event, for the present the Supreme Court has imposed an absolute embargo on the removal of even dead and wind-fallen trees etc. from National Parks & Sanctuaries by its order dated 14.02.2000.

I would suggest that wherever permission is sought, you may ask the applicant to first seek clearance of the Supreme Court. If the Supreme Court directs the grant of any such

permission or even clears the grant of any such permission, then the matter can be considered. This may be the course of prudence to be adopted in this matter.

But these directions were completely ignored and over-looked and tree-felling order was given by the CWW, PCCF (Wildlife) on 6.12.2000 and 7.12.2000, without seeking clearance from Supreme Court as directed by the Solicitor General of India, in his letter dated 1.7.2000.

This is an instance of clear violation of Supreme Court order dated 14.02.2000 in WP 202/1995.(Civil)

vi) Interestingly decisions are being taken arbitrarily as can be noted from the observations of P.C.C.F. (Wildlife) in his letter-dated 10.10.2000 to Addl. Inspector General of Forests (Wildlife) MoEF, New Delhi.

The Hon'ble Supreme Court of India in their order in 1A No. 539 in 1A No. 424 in Writ Petition No. 202/95 (Civil) between Sri. T. N. Godvarman Thirumalpad Vs. Union of India and others has ordered the respondents to restrain from the removal of dead, diseased, dying or wind fallen trees, drift wood and grasses etc., from any National Park, Game Sanctuary or Forest.

I Feel that the Supreme Court's orders restraining removal of Tree growth etc., from the National Parks and Wildlife Sanctuaries are on commercial considerations and not on Environmental grounds. In this case the removal of the tree growth for re-laying the pipeline underground is required on environmental considerations and is not driven by commercial reasons and as such the Ban order is not applicable to the instant case.

In the above circumstances, I request you to kindly accord necessary permission to remove the tree growth existing on the pipeline and for the movement of machinery / equipment to repair the damaged slurry pipeline running within the Kudremukh National Park without insisting on the Supreme Court Order in writ Petition No. 202/95 (civil) as this operation is in the interest of safeguarding the flora and fauna of the region and there is no revenue - motive in this operation.

His arbitrary decision to give clearance for cutting 781 trees inside the Kudremukh National Park is not legally tenable for the following reasons.

(such a felling can be ordered for betterment of wild life ... in this case the CES report mentions that such a cutting cause damage to the park, so this justification does not hold true...if repair or replacing the pipeline were to help the environment why then did the company not go in for such an action as it was well known fact that the pipe was in a bad shape, for a long time and the pipeline had leaked on five occasions).

The PCCF says "*Removal of tree growth for relaying the pipeline is not driven by commercial reasons and as such the Supreme Court order is not applicable to the instant case*".

We feel that, the slurry pipe is meant to transport Iron Ore to the Mangalore Port for sale to parties. The KIOCL has recorded a total sales of 620.79 crores and earned a net profit of 77.04 crores in 1998-2000. How can one say there were no commercial considerations or revenue motive in the operation? The decision seems to be weighted heavily on the commercial side than the ecological side, which is confirmed by the press statement by the KIOCL, wherein they were anguished over the delay in repairing the pipeline which was resulting in losses amounting to Rs. 1 crore per day (Indian Express 16.8.2000).

According to a Newspaper Report (Business line - 14 Dec. 2000) The company has lost considerably due to the slurry pipe leak which took two months to repair, resulting in dropping of net profit by over 66 percent. According to company sources between April to November 2000 the net profit fell to Rs. 9.79 crores from Rs. 29.24 crores during the corresponding period last year.

The company sources had claimed that KIOCL had to obtain permission from the Forest Department for using earth moving equipment and felling trees. After a vigorous follow up and persuasion the State Government gave its clearance on August 21, after which KIOCL completed the repair work.

This clearly shows that the PCCF (Wildlife) was under tremendous pressure to issue the tree felling order not on ecological reasons but purely on commercial reasons.

Even the dates of the order are fishy. The PCCF has given tree cutting order on 6.12.2000 but the Newspaper report says that the order was issued on 21st August

2000, and the pipeline was repaired in a month and pellet plant resumed operations from 21 September, by which time the slurry started flowing once again in the pipeline.

Who is to be believed is a big question? Should we believe the PCCF (Wildlife) who has given the order on 6th and 7th December 2000 or the Newspaper Report dated 14.12.2000, which quotes company sources as saying the order was given on 21st August 2000?

The issue should have been referred to Supreme Court as required under law and not arbitrarily decided by the PCCF (Wildlife) himself, which is a serious violation of the Supreme Court order dated 14.02.2000 in WP No. 202/95 and the directions of the solicitor General of India in his letter dated 18.7.2000.

F) Violation of the Explosive Act 1884

The Chief Controller of Explosives, Government of India, had granted explosives licences on 15.11.1978, which expired on 31.3.1998 and was renewed from 1.4.1998 to 31.3.2000. The licences were renewed in 1998, well after the area was declared as a National Park in 1987.

As the magazine licences granted to KIOCL is in violation Sec 32 [read with 35(8)] of the Wild Life (Protection) Act (WL (Act) of 1972 which read as follows:

"Section 32 : Ban on injurious substances - No person shall use in a sanctuary, chemicals, explosives or any other substances which may cause injury to, or endanger, any wild life in such sanctuary.

For National Park :

Section 35 (8) : the provision of Section 27 and 28, Section 30 to 32 (both inclusive) and clauses (a), (b) and (c) of [Section 33, Section 33-A and Section 34], shall as far as may be apply in relation to a National park as they apply in relation to a sanctuary.

We wrote as follows on 16.6.99, "You have said that the licences can be cancelled by the CCE only if the conditions of magazine licences or provisions of Explosives Act and Rules are violated. We wish to draw your attention to a provision in the Explosives Act which states that a violation of any other law should also be taken into consideration by the licensing Authority for revocations. The said provision reads as :-

"Section 6E; Variation, Suspension and revocation of licences -

(3) The licensing authority may by order in writing suspend a licence for such a period as it thinks fit or revoke a licence -

(a) if the licensing authority is satisfied that the holder of the licence is prohibited by this act or any other law for the time being in force to manufacture, possess, sell transport, import or export any explosive, or is of unsound mind or is for any reason transport, import or export any explosive, or is of unsound mind or is for any reason unfit for a licence under this act;

Further you may please note that it is a settled law that "any renewal is to be treated as a fresh licence and must be consistent with law" which has been upheld by the Hon'ble Supreme Court. (Krishnadastikaram Vs. State of Madhya Pradesh in SC).

It is clear that licences are in violation of the WL Act therefore they need to be revoked as per the provisions of Sec 6E of the explosives Act. Thus we once again request you to immediately revoke the licences given to KIOCL under Sec 6E and Rule 167 of the Explosives Act and Rules 1884."

Accordingly the Joint Chief Controller of explosives was contacted on 13.10.1979 to cancel the explosives licence, as explained above. The objections regarding renewal of explosives licences were also sent to Chief Controller of Explosives, on 11.10.99, Chief Conservator of Forests, Southern Region, on 22.9.99, and the Minister for Environment and Forests, Government of India on 16.9.99 respectively. These letters were forwarded to various Government agencies by the respective correspondents and to the KIOCL.

In reply the KIOCL has stated on 27.09.1999 "the mining is to be carried out for the next one year. It may be noted that no mining activity can be undertaken without blasting, use of explosives and other accessories. In view of the above, it is felt that the renewal of licences mentioned in the letter referred above granted to KIOCL is justified and further renewal is also necessary".

The matter should have been referred to Supreme Court before renewal 31.3.1998 and clearance obtained from the Supreme Court as per directions of Supreme Court in WP 202, 1995, delivered on 15.1.98.

As such no effort has been made by the Government, which is a respondent in WP 202/1995, to seek Supreme Court directions, the renewal of explosives licence on 31.3.98, **is a clear violation of the explosives act, the Wildlife Protection Act and the Forest Conservation Act.**

G) Violation of Dam Safety Norms

The KIOCL, neither took permission for building the Lakhya Dam as required under law, nor did they obtain the approval of the plans from the Dam Safety Panel, constituted by the Government of Karnataka.

This resulted in extensive damage to the spillway of Lakhya Dam during 1992. Much hue and cry was raised by the public. The Government, nominated Shri M. Shivananda, Engineer-in-Chief and Managing Director of Karnataka State Construction Corporation (KSCC), as the representative of the Government of Karnataka, in the committee constituted by KIOCL, by an order on 8.9.92.

The terms of reference included

- i) *To ensure into the circumstances that led to damage caused to the temporary spillway over the Lakhya reservoir.*
- ii) *To assess the damage caused.*
- iii) *To assess the quantum of financial loss incurred in this regard, direct and indirect.*
- iv) *To assess the adequacy of measures taken prior and subsequent to the damage caused to the spill way.*
- v) *To determine the agencies responsible for the lapses, if any, and to fix responsibility, if any, in such an event.*

However, efforts to unearth the findings by the investigating team have not been successful so far.

This is a simple case. The dam was constructed in violation of the Irrigation Act. No safety measures were taken. The plans were not approved by the Dam Safety Panel.

Under the circumstances the Government should have fixed the responsibility and prosecuted the company for its lapses, which are well established. Damages should have been calculated and collected from the company.

Interestingly, the KIOCL, itself constituted a committee under the chairmanship of its Executive Director, to inquire into the circumstances leading to the damage caused to the spillway of Lakhya Dam, built by the KIOCL.

On the contrary, the Government should have constituted an enquiry committee and nominated experts as chairman and members. It could have asked the company to assist the committee with its documents. Such an independent body alone could have unearthed the sequence of events contributing to the damage of the spillway and fixed the responsibilities.

As such the company itself was allowed to conduct the enquiry for its own lapse, obviously not much was expected to surface and till date no action seems to have been taken to fix the responsibility and recover the damages to the environment and the Bhadra Reservoir down stream.

Since the company has violated many acts as explained above. The application for renewal of mining lease must have been rejected forthwith.

H) Violations of Prospecting Lease Conditions:

The KIOCL has violated the conditions laid out in agreement No. 480/95-96 dated 12.7.95 for prospecting in Nellibeedu region.

The company has specifically convened under part II Clause 5,6 and 8 not to build roads and not to cut trees, without obtaining the written sanction of the District Forest Officer.

Yet, the company has violated the licence agreement by formation of roads for prospecting operations of Nellibeedu deposits inside Kudremukh National Park Pic. 6 gives graphic account of the destruction to the pristine shola forests.

Page 27 para 5 of the CES Report reads as follows :

"We observe that the KIOCL has laid several kilometers of roads in the Nellibeedu region, outside the leased area and within the National Park, as part of their prospecting

operations for Iron Ore. The total direct loss of wildlife habitat due to the project, for mining dam, roads, electric transmission lines, pipelines, etc., is around 2000 ha. The cascading ecological effects on the adjoining forests due to the project and its ancillary facilities are spread over a large area.

While Malleswara township and mined area have made a deep intrusion into the larger ecological region of Kudremukh. Formation of approach roads, electric lines and pipelines have opened up some of the most inaccessible areas in the Western Ghats, to human intrusion and illegal activity in the surrounding forests."

IIPA Report of 1994 has also mentioned the occurrence of poaching in K.N.P. area.

The above facts clearly show that KIOCL has clearly violated the provisions of Wildlife (Protection) Act 1972 and Forest Conservation Act of 1980, not only inside the mining lease area, but also in the adjoining National Park area.

II) ECOLOGICAL ISSUES

I) Siltation of Bhadra Reservoir

a) In the letter to the Secretary, Irrigation Department by the Chief Engineer, WRDO (letter No. WRD/MISC/THI) the Chief Engineer and interalia remarked that :-

"The Secretary, and AGM (Administration), M/s. Kudremukh Iron Ore Company Limited, Bangalore in his above cited letters addressed to Government has stated that M/s. Kudremukh Iron Ore Co. Ltd., has built an earthen dam of 65 M height during 1977-79 across Lakhya river, which is a tributary to Bhadra river. The purpose of this reservoir is to lead the tailings of Mining operations for avoiding serious dust pollution. The tailings settle down in the reservoir and the water stored in the reservoir spills over the spillway provided in the Dam on the right flank and the water flows into the Bhadra river downstream. It is estimated that for every 3 tonnes of crude ore mined 2 tonnes is left into the Lakhya reservoir as waste. It is stated that the existing Lakhya Reservoir is almost silted up and M/s. Kudremukh Iron Ore Co. Ltd., has proposed to increase the storage capacity of the Lakhya reservoir by raising the height of existing dam. The Secretary, M/s. Kudremukh Iron Ore Co. Ltd., is requesting approval of Government for taking up construction of raising the existing dam immediately.

The existing storage is rapidly filling up and may not extend beyond a further two years of production. Already there is an evidence of tailings being carried over to Bhadra river." The Chief Engineer observed. .

The Secretary, M/s. Kudremukh Iron Ore Co. Ltd., in his letter-dated 16.11.91 has assured to take up any remedial measures suggested by the Irrigation Department to arrest siltation. In order to prevent silt getting into Bhadra river, Kudremukh Iron Ore Co. Ltd., may have to explore the possibility of putting up as many smaller dams as possible in their leased area and recover the silt (Iron Ore) at the end of rainy season as being done in 2 major valleys.

b) There after the Chief Engineer, Upper Tunga project had sent his finding to the Engineer-in-Chief on 26th April 1998 vide CE:VTP2/DLE1:TS2 PB1 - 98-99 which clearly mentions as follows :-

"(3) The details of sediment load discharged into the Bhadra river downstream by the activities of M/s KIOCL may be furnished. In this connection it is to be noted that during 27th Meeting of Technical Advisory Committee (30) held on 29-3-89, Chief Engineer, Irrigation Central Zone, Munirabad stated that in view of the works of M/s. KIOCL, ***Siltation has increased in the Bhadra River below Lakhya dam and the Committee had decided that the Director, K.E.R.S., Krishnarajasagar should prepare a Technical Report on the increased siltation in Bhadra Reservoir after mining operations.*** Further, a comparative study on silt load in Bhadra river below Lakhya dam prior and after the commencement of mining has, to be made and necessary remedial measures are to be taken up by M/s. KIOCL at their cost.

In reply the KIOCL had stated as follows :-

The very purpose of construction of the tailings Dam is to contain the tailings discharged from the beneficiation plant. The overflow from the Spill way during monsoon is monitored jointly with State Pollution Control Board and it is ensured that the overflow does not carry any silt. This is one of the consent conditions prescribed by the Pollution Control Board. Further, construction of Dam would result in reduction of siltation in the downstream. In addition to the construction of tailings Dam, KIOCL has constructed two rock-fill Dams to arrest Mine wash during monsoon. The arrested Mine wash is being desilted and used in the process for recovery of Iron. As you are aware, whether mining operations are being carried out by KIOCL or not certain amount of siltation would take place during monsoon. After commencement of our operation to take care this siltation. KIOCL regularly carrying out desilting of Bhadra river in the Mine Lease Area to ensure that no siltation is caused to the river at the downstream of Lease boundary.

The Chief Engineer had recommended to collect the report from Director, K.E.R.S., K.R. Sagar in this matter.

In the same letter the Chief Engineer had remarked as follows:

17) *The Iron Ore mined contains 38% as useful material and in remaining 62% contains 22% of Iron which will form the tailings which is required to be stored as the same is allowed to flow in the river will be a major source of pollution. It is the responsibility of the M/s. KIOCL to store the tailing, in their leased premises and not dump the tailings in the*

Government land and river. It is the duty of M/s. KIOCL not to pollute the river and fill M/s. KIOCL have not complied with the above requirement, resulting in the change of region of the river/tributary. The Chief Engineer observed.

c) In addition the memorandum submitted by Wildlife First! has brought in several shocking facts about the siltation levels of Bhadra Reservoir.

Memorandum To Stop Mining By Kudremukh Iron Ore Company Ltd. (KIOCL) Which Is Causing Serious Damage To The Irrigation Potential Of Bhadra Reservoir

INTRODUCTION

The 600 sq km Kudremukh National Park forms the largest wildlife reserve of a wet evergreen type of forest in the Western Ghats. The region receives an average annual rainfall of 7,000mm. It has been scientifically established that the high elevation grasslands of the Western Ghats are natural climatic climax grassland formation from stable carbon isotopic analysis, discarding the earlier notion that grasslands are wastelands. The role of grasslands in these high rainfall areas is of absorbing and moderating the flow of rainfall and preventing soil erosion from the steep hills of Kudremukh. The rainwater that percolates is gradually released into the streams throughout the year.

Watershed Value: The wet climate and the tremendous water retention capacity of the grasslands and shola forest of Kudremukh has led to the formation of thousands of perennial streams in the region converging to form 3 major rivers of the region - Tunga, Bhadra and Nethravathi, which forms an important lifeline for the states of Karnataka and Andhra Pradesh by providing sustenance and livelihood to millions of people living downstream.

Tunga, Bhadra and Nethravathi rivers are mainly tapped at

- Bhadra Reservoir with a capacity of 1785.15 M Cums irrigates 1,05,570 Ha of agricultural land in the state of Karnataka, it has an irrigation potential of 72,700 lakh rupees (Rs.727 crores per year).

- TungaBhadra reservoir with a capacity of 3718.34 M Cums (131.312 TMC) which irrigates 6,63,261 Ha of agricultural land (3,75,080 Ha in the State of Karnataka and 2,88,181Ha in the State of Andhra Pradesh).
- River Nethravathi forms one of the important sources of water for Dakshina Kannada District especially the Port town, Mangalore. A new project by the State Government to tap the water of River Nethravathi is on the anvil, to divert the water of the river Nethravathi over the Western Ghats to irrigate the Districts of Hassan, Tumkur etc.

CATCHMENT AREA OF BHADRA RESERVOIR (Annexure-1)

The mining operation of KIOCL is located at the highest elevation in the catchment area of Bhadra Reservoir at 950m amsl at Kudremukh or the originating point of river Bhadra, while the elevation of the riverbed level at the Dam site is at 601m amsl. Any damage to the catchment area of river Bhadra at higher elevation affects everything located downstream of the polluting or the damaging zone.

A report by the STAC sub-committee for Bhadra Project (Annexure-2) cites the recorded the silt load in river Bhadra just downstream of mining (Malleshwara gauging site) to be as high as 27,000 metric tonnes per month in the monsoon. Based on this data, the report recommended for a study on the reduction of the storage capacity of the Bhadra Reservoir due to mining, as the mining operation was not anticipated during the planning of the reservoir.

SEDIMENTATION OF BHADRA RESERVOIR

Bhadra Reservoir Project was designed for an overall lifespan of 180 years, which means the potential of Bhadra Reservoir would end by the year 2144 under normal circumstances. The design of the Reservoir did not take into account the mining operation in the catchment area as it was not anticipated during the construction of the Dam at Lakkavalli. The Left Bank canal was placed very low, only 11meters above the original river bed level. The designed lifespan of the Reservoir would have reduced considerably due to heavy soil erosion of the loose strata in the monsoon from the Kudremukh open cast mining area.

A study on the reduction in storage capacity of Bhadra Reservoir was conducted by the Karnataka Engineering Research Station, Krishnarajasagara and Regional Remote Sensing Service Centre, Bangalore in 1998 (Annexure: 3).

This study concluded that '...the overall reduction in capacity between levels 650.05m to 657.76m is worked out to be 1.29% in the time span of about 30 years between 1964 and 1992/94 and it works out to an average of 0.043% per year'

It is highly intriguing to note that the Superintending Engineer, in a letter dated 20/9/2000 to the Chief Engineer (Annexure: 4), Karnataka Irrigation Department, Upper Tunga Project, has interpreted the above report as reduction in capacity of the entire Reservoir by 0.043 in a span of 30 years. This is highly misleading and amounts to grave misinterpretation of facts.

Whether this shocking lapse is due to the reservoir authorities' deliberate attempt to cover up the actual damage or the State Government's direct interference to accommodate the destructive mining of Kudremukh Iron Ore company is a matter that warrants a high level probe by experts.

It is also stated in the report that the lower levels of the reservoir are expected to have higher silt deposits. Ironically, only 7-meters at the topmost level out of the total reservoir depth of 57meters (from 650m to 657.75m) was monitored for sedimentation. Nothing was mentioned of the reduction in capacity in the lowest levels from 601m (the original riverbed level) to 650m.

As the Left Bank canal of the Bhadra Reservoir is at a very low elevation of 612m just 11meters above the original river bed level of 601m; immediate threat is anticipated for the beneficiaries of the left bank canal, in the district of Shimoga which is presently irrigating 8300Ha.

Further, it is reliably learnt that the TungaBhadra Reservoir authorities have stated that the capacity of the Reservoir has reduced by around 28%. The possibilities of substantial contribution to the sedimentation of TungaBhadra Reservoir due to mining at Kudremukh cannot be ruled out, mainly due to

- Overflow of water during the monsoon - carrying silt downstream to TungaBhadra Reservoir.
- Overflow of silt down to TungaBhadra Reservoir from Bhadra Reservoir when the scouring sluice valve is opened at Bhadra Reservoir.

Wildlife First! along with other Wildlife conservation organisations who are signatories to this memorandum, urge the Government to relocate the mining (since the dam cannot be relocated) from the catchment area of Bhadra Reservoir and protect the huge national investment on the Bhadra Reservoir Project which is irrigating a vast area of 1,05,570 Ha of agricultural land with an **agricultural output of Rs.727 crores per year**. If the Government adopts a blinkered view and allows the continuation of mining by KIOCL, merely based on the meagre economic contribution from mining low grade iron ore, it is sure to cause irreparable damage to the agricultural economy (**which is more than seven times the annual profits earned by iron ore mining at Kudremukh**) in the Bhadra command area affecting lakhs of farmers in the districts of Chikmagalur, Shimoga and Davanagere.

d) The company KIOCL itself has admitted that there is siltation of Bhadra River and has unwittingly acknowledged that "*siltation of Bhadra River will be brought down to the barest minimum*" in the letter dated 16.11.91 by the Secretary, KIOCL addressed to the Chief Engineer, WRDO.

"9) We have made a detailed de-silting plan through which we are removing the siltation from the rivers at the sites of mini pollution dams. To arrest mine wash off, we have planted a large number of trees and we have placed several check bunds on the mine slopes. In addition, we are planning construction of mini pollution dams over Kachige Hole and other streams joining the Bhadra river. Through these methods, we assure you, siltation of river Bhadra will be brought down to the barest minimum. We would, however, welcome any further suggestions from your Department to arrest siltation." The KIOCL admitted on 16.11.91.

e) In support of our investigative findings of heavy siltation of the Bhadra Reservoir taking place we would like to place on record the objections filed by the Deputy

Conservator of Forests, to the DC, settlement Officer, Chikmagalur, Mangalore and Udupi, vide No. C3/CR/30/KNP/99-2000 dated 30.6.2000. Which reads as follows :-

"Exposure of these areas removes the soil cover and disturbs the site. The already existing mining site is a proof of this as not even a blade of grass grows in the abandoned mined area where the top soil has been removed. (refer also to CES report extracts)

Coming to the issue of mining by Kudremukh Iron Ore Company Limited, the township lies within an enclosure and the actual mining site is within South Bhadra Reserve Forest. The technique of mining is open cast mining using heavy machines. The loss of soil cover is too evident from a mere look at the mined area as well as from the colour of the water of Bhadra river before and after it passes through the mining site. Though technical studies have been initiated to assess the actual extent of soil loss but the facts are too visible to be understated. The use of heavy machinery will lead to soil compaction which can not allow regeneration of the area in any manner.

(a) *The Lakhya Dam which was built to collect tailings and also to avoid pollution of Bhadra river had already been filled to capacity in 1984 when the company violated the Forest Conservation Act to raise the height of the dam. This action leads to further submergence of 340 Ha. of good forest area outside the area leased to the Company. In its present situation, this dam may be useful for 5-6 years only when it will be full to its capacity. Further mining would require further increase in the height of Lakhya Dam or construction of another dam and further submergence of the forest area outside the mining site.*

Point 7 to 10 clearly indicate that even if mining is permitted within the existing lease area, its effects of destruction on forest areas and pollution of the environment are seen all around in far flung area. The soil losses are many fold as this area is a high rainfall area. As stated earlier, the reclamation of this soil or biodiversity will not be humanly possible." The DCF observed.

F) The siltation of Bhadra Reservoir is seriously affecting the environment and the water regime. The onsite disaster management seems to be non-existent and this has resulted in major ecological disasters in the recent past. The damage to spillway of Lakhya Dam

in 92 brought in incalculable damage to the ecosystem down stream according to CES report the Lakhya dam has breached several times and the structural stability of the dam needs to be verified is emphatically mentioned in the report.

II SLURRY PIPE LEAK BRINGS IN THE WORST ECOLOGICAL DISASTER

a) The breaking up of the slurry pipes during 3rd week of July 2000 has brought in one of the worst ecological disasters in the History of Karnataka which is evident from the following Newspaper reports

Slurry leak puts KIOCL in spot, *Deccan Herald*, dated 20.07.2000

The Kudremukh Iron Ore Company Limited (KIOCL) seems to be heading from one controversy to another. While there has been lot of opposition of late to extending the mining lease on environmental grounds, the case of slurry leak at Kanyalu near Karkala has caused much embarrassment to the company.

The adverse impact of the leak is yet to be assessed but already, the slurry has polluted the agricultural fields and the Ennehole stream which flows nearby.

The KIOCL has stopped production and pumping of slurry but it has not been able to repair the damaged pipe so far.

The KIOCL has a 100-km pipeline to transport iron slurry from the Kudremukh mines to Mangalore where it gets converted into iron pellets for export. A couple of days back, the pipeline developed a crack at Kanyalu and the slurry started flowing to the surrounding areas.

KIOCL sources told Deccan Herald that the leakage had been detected at a place which had to be reached on foot.

"It is not possible for any vehicle to enter that area. This is bound to delay the repair work. While production has been declared closed for 10 days, the lease license period of the KIOCL, will also expire within four days (July 24)," they said.

Residents in the nearby areas said that minor leaks had been noticed from the pipe ever since the rainy season started this year. Had the company acted immediately, the problem could have been solved to a great extent.

“Now, there are large deposits of slurry on the fields and the Ennehole stream has been blackened,” they said.

Leak in KIOCL pipeline worsens, The Hindu, dated 20.07.2000

The iron ore slurry, leaking from the KIOCL pipeline passing through the dense forests of the Western Ghats, reported yesterday, has worsened and is flowing into the Yennehole river which passes through 23 villages.

In one of the worst ecological disasters, the iron ore slurry has turned the otherwise crystal-clear river into a deep brownish-grey.

The leak, reported on Tuesday, continued unabated throughout the night as engineers from the KIOCL failed to contain the leak. When this correspondent reached the leakage point, the slurry was gushing out from a 2-ft wide hole in the pipeline.

The local people, who were alarmed at the change of the colour of the river, came to know of the leakage and prevented the water from entering their fields. But the greater danger is the threat to wildlife and domestic animals all along the river's course. The river runs thorough the Kudremukh National park and, according to Government stipulations, destruction of the ecology and water sources inside the national park is punishable by law.

Considering that the Western Ghats as one of 18 ecological hot spots for protection of bio-diversity and that the Worldwide Fund for Nature has recognized this as one of the Global 200 area which needs to be conserved, this ecological disaster has been viewed by the experts as a grave danger to wildlife and agriculture.

The KIOCL which has been trying to get its mining lease extended by the State Government, appears to have bungled badly in this case.

KSPCB slaps notice to KIOCL, seeks explanation

The Karnataka State Pollution Control Board has issued a notice to the Kudremukh Iron Ore Company Limited (KIOCL) seeking an explanation on the iron slurry outflow from the damaged pipe at Kanyalu near Karkala reported a few days back. The Pollution

Board has given four days time to the KIOCL to reply to the notice. The nearby Ennehole stream and agricultural fields have been heavily polluted due to the slurry outflow.

Talking to Deccan Herald, Environment Officer Jayaprakash said the Pollution Board was unhappy because the KIOCL did not inform the Board immediately after the leakage was noticed. "We too came know about the pipe-break only after newspapers carried the report," he added.

Mr. Jayaprakash further stated that it is undoubtedly a serious matter. Even though the KIOCL has stopped production in view of the damage caused to its pipe transporting iron slurry to Mangalore from Kudremukh, the damage done to forest and agriculture should yet to be assessed by the respective departments. According to eye witnesses, the Ennehole stream has turned completely black causing anxiety among the nearby villagers.

The KIOCL has laid a 100 km pipeline to transport iron slurry from Kudremukh mines to Mangalore and there it will be converted into iron pellets for exports in Mangalore. A few days back, the pipeline developed a crack at Kanyalu in Karakala taluk and slurry started flowing to the surrounding areas.

Mr. Jayaprakash maintained that the source of leakage is inaccessible to any vehicles and a long distance needs to be covered by walk. The villagers say that the pipe was leaking in a small measure ever since the rainy season started this year. Had the company acted immediately, the gravity of the problem could have been avoided. Now the slurry is deposited in the fields and the Ennehole stream has been blackened.

Villagers fear disastrous effect on water; agriculture, Deccan Herald, date 6th August, 2000

Even after 20 days, while Kudremukh Iron Ore Company Limited (KIOCL) is yet to repair the point of slurry leakage in its pipeline at Kanyalu near Karkala, the villagers are worried about the possible fallout of the severe pollution of the Yennehole stream caused by this.

While the villagers are anxious of its effect on drinking water, agriculture, forest and fish-life, the government agencies like the Pollution Control Board, don't really seem to bother much about the assessment of the possible damage.

The massive leakage was reported on July 17 from the pipe at Kanyalu in the Naravi forest area and the KIOCL suspended its production and transport of slurry from Kudremukh to Mangalore. The KIOCL has laid an underground pipeline of about 100 kms to transport the slurry.

As admitted by the company itself, the amount of slurry which flowed out of the pipe, could be about 4000 tonnes and the likely 'loss' suffered by the company is to the tune of 50,000 US dollars. These figures themselves prove the gravity of the problem. While the company is speaking about its 'loss', the government agencies, which should have protected villagers' interests, are silent on the possible damage.

Much of the leakage has flown into the Ennehole stream which is visibly polluted for about 20 kms stretch and a part of the leak has spread to the forest. Through small irrigation canals, the slurry has reached the nearby agricultural fields also. The villagers who are dependent on Ennehole stream for drinking water, are now facing untold misery. Going by the charge levelled by Karnataka Vimochana Ranga, the KIOCL personnel themselves declined to consume water from Bhadra river in the past fearing pollution and decided to lift water from Sita river which flows 8 kms away from the Kudremukh company. Ironically, Pollution Control Board maintains the Ennehole pollution will not cause much harm.

On the contrary, the villagers Devappa, Ananda Devadiga, Geetha etc. have a different story. The Ennehole stream has been blackened and it is impossible to drink the river water. The fishes, which were seen earlier, have become invisible after the slurry leakage. They are concerned about the damage to their agricultural crops.

According to Pollution Board officials, a Technical Advisory Team consisting of Prof. Halappa Gowda, Prof. Lahiri and Prof. Manjunath among others, has visited the 'spot' and concluded that the slurry will slowly deposit at the bottom of the stream and hence the water will be fit for drinking. They have also not noticed any fish kill so far.

But many villagers doubt whether Pollution Board officials have really visited the right spot because it is inaccessible to vehicles and care compelled to walk a few kilometres. Even the KIOCL has not been able to correctly locate the point of leakage till now as the pipe is still deep-buried underground. It is a dense forest and labourers are hardly coming forward to work.

However, KIOCL officials claimed that they will complete the repairs within one week. Ironically, they have been saying from the beginning that the time required for them to complete the task is just one week and now three weeks are almost over.

Meanwhile, there are reports about the uselessness of the whole 100 km pipeline which is more than 20 years old.

History repeats itself

It is a history not to be forgotten. Three labourers were killed in 1996 when they were engaged in Kudremukh pipeline related activity almost near the same spot where iron slurry leakage has been reported now. They were virtually buried in the ground due to a land-slide when they were dealing with the pipe. The ill-fated labourers were Muniraj Jain, Sheethal Kumar and Jagadeesh Jain.

Kanyalu village is inside the Naravi forest and there are no roads for vehicles where the actual slurry leakage has occurred. The company is struggling to get "manual labourers" to trace the actual point. Nearly 20 days have passed and Kudremukh requires still more than a week to repair the pipe, according to company sources only.

KIOCL yet to repair slurry pipeline leak at Kanyal, *Indian Express*, Date 9th August 2000

The leak of slurry (liquid iron ore) from the Kudremukh Iron Ore Company Limited (KIOCL) pipeline at Kanyal village in Karkal taluk has not yet been repaired.

The possibility of the slurry polluting the Ennehole river has caused anxiety to the residents of Kanyal. Drinking water, agricultural lands and fish resources have been threatened by the leakage, they alleged.

The KIOCL, having identified the leak in the pipeline at Kanyal in the Naravi forest region on July 17 had stopped the production and passage of slurry through the pipeline. It may be recalled that a 100 - km long underground pipeline has been installed by the KIOCL to transport slurry from Kudremukh to Mangalore.

Slurry leak causes incalculable damage, The Hindu, date 7th August 2000

Shimoga, The damage done by the leakage of Iron slurry from the pipeline of the Kudremukh Iron Ore Company Ltd (KIOCL) to the Western Ghats seems to be incalculable if the findings of a study team are any indication.

The 12-member study team from the Karnataka Vimochana Ranga (KVR) comprising journalists and social workers recently visited the area where the pipeline leaked to assess the impact on the fragile eco-system of the Western Ghats in the light of permission extended to the KIOCL to mine in the area for one more year.

The team toured the area extensively, and after collecting first-hand information concluded that the damage done to the Ennehole - a tributary of the Souparnika river - which has been highly polluted by the leakage - is a matter of serious concern. The level of pollution in the Ennehole, which is the only source of potable water to the people residing on its banks, is to be seen to be believed. Thick layers of iron slurry floating in the tributary have rendered the water unfit for consumption.

The 97-km long pipeline laid between the work spot at Kudremukh in Chikmagalur District and the port in Mangalore 30 years ago to transport the iron slurry appears to have outlived its utility and become obsolete if the leakages at several points are any indication. The repair of the pipeline does not appear to be a priority on the KIOCL's agenda as it cannot be done effectively considering the poor condition of the pipeline.

Further, frequent landslides in the forest make it difficult to spot the location of the pipelines as in some points it is as deep as eight meters. To get down to the damaged pipeline, the workers will have to a depth of 20 metres. Invariably the repairing work becomes risky. The seriousness of the leakage came to light in 1996 when three

temporary coolies engaged by a private contractor for repairing a leak in the pipelines were buried alive in a landslide.

The only solution appears to be to replace the pipeline completely. The question is whether the KIOCL will do so as its mining licence has been extended for a year only. It is stated that the KIOCL can think of repairing the damaged pipeline only if the permission is extended for atleast 20 years.

Mr. S. Sundara, a KVR activist, says that the seriousness of the leakage which was noticed at Kanyalu near Nooralubettu in Karkala taluk can be gauged from the fact that the leakage on a particular day (July 26) was as much as 4,000 tonnes against the transporting capacity of 15,000 tonnes of iron slurry per day. He says that as the pipeline passes through the Kudremukh National Park for a distance of nearly 40 km., it has posed a potential threat to the forest in the park area. He says that its vulnerability to the threat arises from the leakages in the pipeline which he says have polluted the Ennehole.

The level of pollution at Kanyalu is a matter of serious concern as the effluents are carried for a length of 20 km. downstream of the river. Mr. Sundara says that according to the local people the first victims in the river since the leakage in the pipeline started were fish and frogs, which have now become nonexistent. He points out that the Biological Oxide Demand (BOD) and the Chemical Oxygen Demand (COD) of the river water have come down drastically owing to the pollution which might have caused the fish and frog kill.

He alleges that the callousness of the KIOCL is such that it had not bothered to warn the people about the ferrous contents in the river owing to the leakage. As there is no other source of water, the people in the area have been forced to consume the untreated and polluted water.

Mr. Sundara ridicules the claim made by the KIOCL that it has not caused the pollution of the river. "If it is so, then why should it lift the water from the nearby Sita river for consumption of its staff in its colony instead of using the Bhadra waters?" he asks. He says that the "official" iron content in the Bhadra is 0.58 mg. against the normal permitted level of 0.3 mg., which shows the health hazard that the people downstream of the Bhadra are exposed to. He alleges that although the

KIOCL has a reserve of Rs. 600 crores to clean the Bhadra it has hardly taken up the cleaning exercise so far.

Questioning the property of the Government extending the mining lease (mainly out of consideration for nearly 2,500 workers, who would be thrown out of employment otherwise), Mr. Sundara says the KIOCL should have made alternative arrangement to rehabilitate the workers, for it is well known that they were recruited for a specific period of 30 years till the expiry of the lease period.

Mr. Sundara cautions that the further consequences will be disastrous if the Government yields to pressure and extends permission to mine for 20 years. Besides, the KIOCL appears to be no more interested in continuing its operations on its own as its management has reportedly sought disinvestment.

He says that a U.S. based company has been retained by the KIOCL as its consultant, to hurry through the privatisation process. Before embarking on it, he says the KIOCL is trying to acquire new areas such as Gangadikallu and Nellibeedu, for fresh mining and it has been trying to obtain permission to do deep mining in the existing mines. He says that the area, which has been already identified as earthquake prone, will face the threat of frequent earthquakes if deep mining is permitted.

Mr. Kaikuli Vitthal Hegde, an environmentalist who led the study team, says that the KIOCL should consider the one-year extension period as a time to "pack off". He warns of a dangerous impact on the Western Ghats if the mining is allowed beyond one year.

Pipeline rupture affects production at Kudremukh plant, Indian Express, dated 16 August, 2000

The pelletisation plant of Kudremukh Iron Ore Company Limited (KIOCL) at Panambur, New Mangalore has not been functioning for the past three weeks, resulting in financial losses amounting to Rs. 1 crore, a day.

According to an official at the KIOCL, the plant with a production capacity of 3 million tonnes per year, was started in 1987. The plant has been producing export quality pellets which were being used in blast furnaces and in the production of direct reduced iron in Japan, Iran and China. The plant was receiving 20,000 to 22,000 tonnes of slurry

per day from Kudremukh through the pipeline to Panambur plant where slurry was filtered to produce filter cake.

The plant was exporting 30,000 to 60,000 tonnes pellets and fine power by 10 to 12 shipments, per month and sometimes through bulk carriers. However, all this changed following a rupture of the 67 km-pipeline carrying iron ore slurry, near Mullikar Kenya village in Karkal taluk of Udupi district, forcing the closure. In the previous year, Kudremukh recorded the highest turnover of Rs. 620 crore, with profits slated to be around Rs. 80 crore.

The present closure of the Kudremukh plant had also adversely affected the traffic at the New Mangalore Port Trust (NMPT). The KIOCL plant accounted for nearly 40 per cent of the total cargo handled at the Port.

The closure has affected nearly 500 workers at the KIOCL. But company sources clarified that the rupture was a minor problem, which would be rectified shortly. However, the task is not easy considering that landslides and incessant rains that have lashed the district, have made the area inaccessible to rectify the fault. The Mullikar, Kenya village is at an elevation of 700 mts. in the dense jungles of the Western Ghats.

Repair works on the pipe may be further delayed, considering the fact that the terrain does not permit entry of heavy machinery, without cutting a few trees in the vicinity.

A permit from the Department of Environment and Forests is mandatory, as the entire area falls within the purview of the National Park. In the present conditions, permission for cutting down trees is expected to be delayed.

However undeterred, KIOCL officials have intensified their efforts to obtaining a permit to cut down the trees, in cases of absolute necessary, to facilitate easy access to heavy machinery needed for the repairs.

With the underground pipes in a state of dilapidation, company officials are apprehensive on the possibility of further ruptures at other locations. Though a proposal for the replacement of the pipe had been made earlier, the enormous expenses involved, had acted as a deterrent.

But with the closure of the company, the officials are actively considering a proposal to replace a section of the pipeline.

The KIOCL had recently obtained a second temporary mining licence for an year, after the expiry of its temporary mining licence.

The earlier 20 year licence had expired in July this year. With the complete stoppage of production following the leak, the KIOCL is now rethinking the merits of further investments involving crores of rupees in the project for the laying a new pipeline.

However, under the existing environmental laws temporary mining licences can be granted only twice to a company. In the present circumstances, a permanent mining licence seems to be the only solution for development of the largest iron ore mine in Asia.

b) The company was only keen to get the damaged portion of the slurry pipe repaired, and were not interested in clearing up the iron ore mess.

Shockingly, the Pollution Control Board gave a clean chit to the company in its letter dated 21.10.2000, which is reproduced below :-

"About 100 kms pipeline was laid from Malleshwara to Mangalore to carry iron ore slurry and it is parallel to Kanyalu stream, the Kanyalu stream finally joins to river Yennehole. The pipeline laid area comes under reserved forest. The sub-committee observed that, the Iron Ore deposits on the banks of the stream and river bed. Since the density of slurry is more than water and as slurry is not water soluble, the slurry has deposited at various places in the river course. There is no possibility of affecting water quality. The sub-committee has observed that there was no fish mortality. Existence of fish life in the riverine system is observed.

The water quality analysis report of the Board indicates that there is no adverse impact on river water quality due to the mishap. The sub-committee also observed that, the

problem is limited to aesthetic pollution and may not cause adverse effect on river water quality.

However, the Member Secretary, Karnataka State Pollution Control Board instructed the factory authority to remove the Iron Ore deposits from the river bank immediately and submit compliance. This is for your kind information."

Though the instruction were given to the company to clean up the mess, no action has been taken by the company under the pretext that heavy machinery cannot be taken to the actual spot.

Damaged pipes have been replaced / relayed after cutting down hundreds of trees.

c) The company has been claiming that they are releasing clean water into the river. In a letter dated 8th November 1991, to the Secretary, Dept. of Irrigation they have asserted as follows

If their claim is true and the water is potable, how come they are not drawing the water from River Bhadra for their township ? The paradox is that, they are drawing water from Sita river for consumption of its staff in their township instead of drawing water from Bhadra river.

But the villagers down stream of Bhadra are forced to consume the untreated polluted water !

III) EARTHEN LAKHYA DAM, A DISASTER IN THE WAITING ?

a) The CES in its report has questioned the wisdom of putting up the earthern dam at Lakhya to trap the silt from washing off to the Bhadra Reservoir.

In the CES recommendation No. 21

"Hazards of breaching of Lakhya Dam due to high rainfall needs to be re-examined, detail studies on the structural stability of the Lakhya earth fill dam in the longer run needs to be carried out".

The Bhadra river valley which houses the Kudremukh National Park, is on record as the third wettest place on earth, it records an annual rainfall of upwards of 7000 mm during four monsoon months every year.

b) Is the State Government Penny Wise Pound Foolish ?

The Lakhya Dam built without proper clearance has breached severral times, resulting in runoff of silt with water to the Bhadra Reservoir. Nearly 320 million tonnes of loose earth, in the form of tailings/silt has been deposited by the company in the Lakhya Reservoir, which is an eco-time-bomb in the waiting.

In addition to breaching of Lakhya dam now and then, the loose earth is getting mixed up with the flood waters and steadily silting up the Bhadra Reservoir, as evidenced by us.

Siltation of reservoirs, lakes and tanks has been the biggest ecological challenges of our times. The State Government on one hand is eager to renew the mining license, which might bring in about Rs. 20 crores profit to the KIOCL. But at what price. The State Government is presently running from pillar to post to get a loan of Rs. 6,000 crores from the world bank only for desiltation of reservoirs, lakes, which were silted up due to the lack of fore sight in our politicians and administrators who had perpetually encouraged such ecologically disastrous activities leading to extensive deforestation. Now they are taking huge loans to clean up the colossal mess on account of such activities.

IRON ORE EXTRACTION AND PROCESSING AT KUDREMUKH

According to the company, severe adversity and serious setbacks have forever dogged ore extraction at Kudremukh. Natural circumstances have seemingly conspired, time and again to defeat their enterprise. Kudremukh is nestled in the Western Ghats which is considered, as one among the 18, hotspots of biodiversity on earth. The location and characteristics of the rich biologically diverse area Kudremukh was certainly undesirable as a source of iron. But the ore extraction process began after many initial hurdles.

Kudremukh is on record as the their wettest place on earth, with annual rainfall upwards of 7000 mm. It is practically impossible to do any meaningful activity associated with mining during the four monsoon months of the year, as stated by the company during its formulative years.

Construction work in such conditions was impossible. A 110 km. road in the Ghats was built, a survey pipeline to Mangalore Port was also built to transport the concentrate. The Port was deepened to facilitate docking of big ships.

Bulldozers and earth moving equipments were commissioned to remove pristine forest cover, shola forests and top soil. All other rocks and soil covering the deposits were removed. All these items were called as overburden and discarded. Thereafter, the miners started using explosives to break up the mass ore. Gyratory crushers relentlessly reduce the extracted crude ore to small manageable lumps. The lumps are transported by conveying system downhill for grinding, powdering and concentration of ore. Flotation process is being used to improve concentrate quality.

The KIOCL has built a 65 metre high earth-fill dam, which was later raised to 100 mts. across the Lakhya tributary to stock the waste material such as clay, loose sand and other waste.

The rich ore is called as concentrate and the waste material is referred to as tailings, are separated in the beneficiation process. (see drawing)

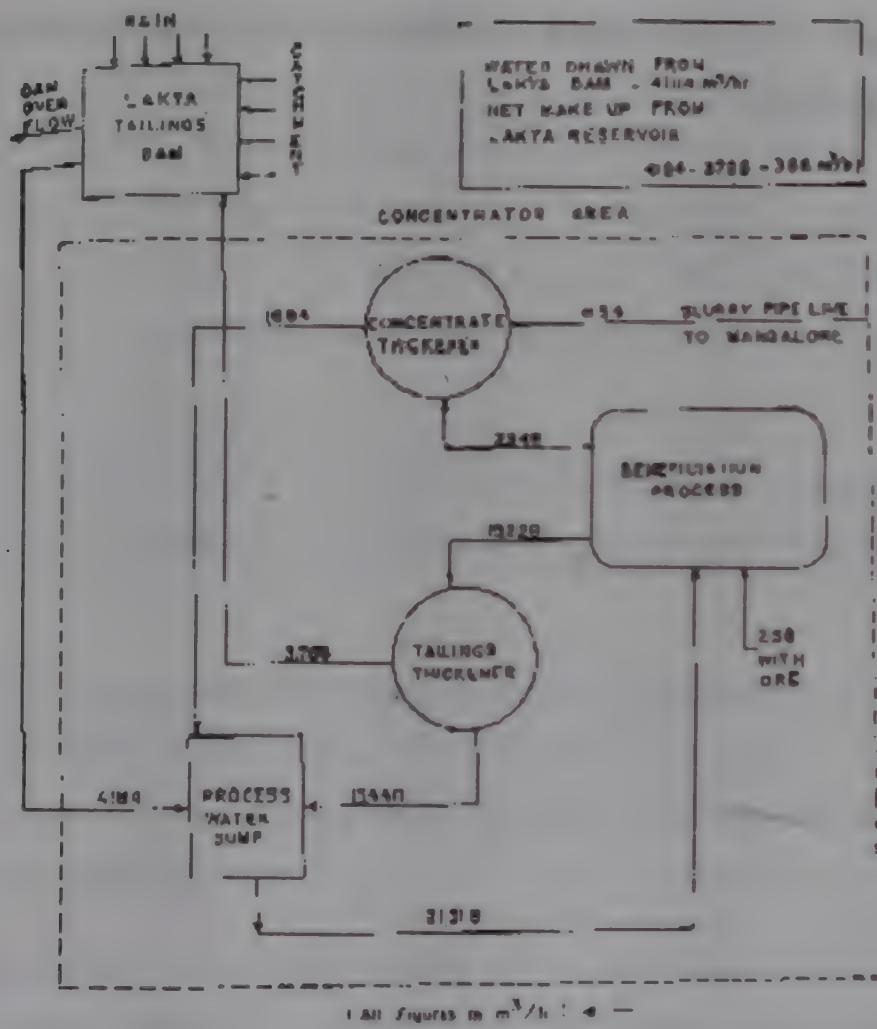


Fig. Beneficiation Plant of KIOCL Kudremukh

For every tonne of concentrate produced, two tonnes of waste materials, called as tailings are being dumped in the Lakhya Dam. The beneficiation process is being carried out at the mine site itself to save the cost of transporting huge quantities of waste

material. Thus as on date KIOCL has dumped around 320 million tonnes of clay, sand and other materials in the Lakhya dam, built for the purpose.

In a similar mining processes in the United States, iron ore companies were located near the lake superior and these companies were also conveniently dumping their tailings into Lake Superior, as is being done by the KIOCL, for dumping its tailings in the Lakhya dam, built across the Lakhya tributary, of River Bhadra.

However, this practice was condemned by United States environmentalists as harmful to the ecosystem and a federal court ordered an end to this dumping practice, which was polluting the lake. Processors in the US are now compelled to dispose off the tailings in special large artificial basins. But in a country like ours wherein the environmental awareness amongst decision makers is dismal, waste materials are continued to be dumped into river systems.

Chapter II

National Environmental Engineering Research Institute (NEERI) Comprehensive Environment Impact Assessment (CEIA) - Critique

NEERI REPORT NOT ACCEPTABLE IN ITS PRESENT FORM

i) Deep mining issues not addressed (in 1.3.1 page 1.7) Comprehensive Environment Impact Assessment Report (CEIA) of mining by KIOCL - prepared by NEERI, it is clearly mentioned that the primary ore being mined will last for only for another 6 years at the present rate of mining.

Mineable Reserves (Page 1.5, Sec. 1.2.3)

The original mineable reserves at Kudremukh after taking into account the techno-economic factors were estimated at 362 million tons of weathered ore. For the present figure of mineable reserves, the figures of 362 million tons needs to be reduced by the quantity of ore that has already been extracted during past 20 years period of mine working. Taking in to account the ore quantity of 243 million tons that has been mined out upto 31.12.1999, the available mineable reserves as on 1.1.2000 work out to 119 million tons.

Considering the fact that only 119 million tons of mineable reserves are left as on 1.2.2000, and at the present rate of mining the ores will be exhausted in about nine years time.

The report also says that estimates have indicated a presence of about 310 million tonnes of mineable primary ore, below the weathered ore, which is expected to last for about 20 years. **This can be mined only by deep mining and not by open cast method adopted at present.**

Deep mining is an entirely different ball game from open cast mining, as the Kudremukh area is the 3rd wettest region in the world with heavy rains torpeding for 4 months in a year. ***The issue of flooding of deep mines by rain waters and plans for pumping out floodwaters from the deep mines and its impact on environment are not at all addressed in the CEIA.***

Deep mining also involves use of different category of explosives than that are being used presently. The issue of deep mining, requires seismological studies and earthquake prediction etc., since the area is considered as an earthquake prone area.

The CEIA recommends extension of lease, but has not dealt with the subject and the likely impact of deep mining in the chapters relating to identification of impacts, prediction of impacts and environmental disaster management.

The CEIA makes absolutely no reference to these problems and thus offers no remedial measures, whatsoever.

Except in one para, the CEIA (page 2.42) has discussed the deep mining subject as follows "For the mining of primary ore, blasting will be required. Due to adoption of latest blasting techniques as is being practical presently, the blasting is not expected to generate higher levels of noise".

Certainly NEERI was not hired to give generalised complacent views on such a serious subject as impact of blasting in deep mines !

ii) Increasing of Lakhya tailing dam

In 1.34 (page 1.11) of the NEERI Report, the present height of Lakhya tailings dam (100 mts.) and its capacity 320 million tonnes are discussed. Since the tailings have more or less filled to the capacity of the dam, the CEIA says there are plans to build one more dam in Kachigehole or Singsarahole or raise the height of Lakhya dam by another 15 mts.

But impact studies, environment impact statement, and management plans are not discussed for the proposed dams to be built in Kachigehole or Singasarahole or raising of Lakhya dam height all of which are a part of the same project. The CEIA says that there is a separate EIA for Kachigehole dam.

The truncated and disjointed approach for a single project is not tenable. Since no impact statements for Kachigehole dam, Singasara dam and raising of Lakhya dam, which are part and parcel of the KIOCL project are not made available in the present NEERI report, it cannot be accepted in its present form.

iii) Accidents and Mishaps are not addressed in 'CEIA'

The history of development of dams and slurry pipes etc., are discussed, in the CEIA. But shockingly the CEIA has not discussed the mishaps that have occurred in the recent past where in the spillway of the Lakhya Dam had given way causing incalculable damage down stream upto Bhadra Reservoir.

As evidenced, in the Directory of National Parks and Sanctuaries, Karnataka, Management for Status and profiles, published in 1994, by Indian Institute of Public Administration. (Page No. 48)

“1992 part of Lakhya dam gave way, causing damage down stream”

The CES Report has also questioned the structural safety of the Lakhya earthen dam.

The State Government had appointed MD of Karnataka State Construction Corporation as a member of the enquiry committee vide G.O. No. ID 223 MM 91(P) dated 8.9.92 to enquire into circumstances that led to damage to Lakhya dam and determine the agencies responsible for the lapses and fix the responsibility.

Five times the slurry pipeline had leaked in the recent past. The latest slurry pipeline damage which resulted in gushing of slurry from 2 feet hole in the pipe at Kanyalu in July 2000. This left large deposits of slurry (4,000 tonnes) in fields and Ennehole stream because black and the effluents were carried for a length of 20 kms. down stream.

The Lakhya dam mishap was also viewed seriously and enquiry committee was constituted to enquire into the circumstances that led to the breach and to determine the agencies responsible for the lapses and fix the responsibility.

But shockingly the CEIA, prepared by NEERI, has avoided these questions and therefore no remedial measures are discussed in the CEIA Report, which is a serious lapse on the part of NEERI.

iv) Slurry pipe damage exposes NEERI'S incompetence to address environmental issues.

It is believed the NEERI team conducted their environment impact studies for one year at the site. They have not bothered to look into the poor maintenance of the slurry pipe, which runs a length of 67 kms. to Mangalore Port crossing forest areas, agricultural fields and streams. Due to poor maintenance, thick vegetation had grown all along the pipeline and obviously no periodic inspections were carried out to check the condition of the 20 year old pipes. Predictably the ill maintained pipes gave way and huge quantities of Iron Ore concentrate gushed out of the pipe during July 2000. The company was ill-prepared in its environmental disaster management. It took over four months for the company to rectify the damage by felling 781 trees enroute the slurry pipeline.

The accident happened in July 2000 and shockingly the CEIA of NEERI submitted in November 2000, fails to mention the above accidents in its report. The identification of hazards - 6.01 under chapter Environmental Disaster Management (6.0) does not even discuss these associated problems from related activities. NEERI has given a clean chit to the company!!

The CES Report has also pulled the alarm chain, while mentioning that several instances of leakage of pipeline to Mangalore Port, resulting in spillage to streams and forests.

The NEERI-CEIA, ought to have looked into all the environment impact aspects and address them. The dangers of the slurry pipeline has been overlooked in their report, which has caused phenomenal damage to the environment. **This aspect is another good example of NEERI's incompetance to address serious environmental issues.**

v) NEERI CEIA Study incomplete, biased and inadmissible.

The envisaged scope of CEIA, as mentioned in 1.5 (page 1.22) includes *interalia* identification and quantification of significant impacts of mining operations and associated activities on the environment.

Unfortunately, the CEIA has ignored the KIOCL pipeline and the further processing of Iron Ore at Mangalore, where the ore pumped from the pipeline is stock piled in a 400,000 tonne storage area. The concentrate in filter cake form is conveyed either to a ship loader directly or to the pellet plant. In the pellet plant the filter cake is mixed with lime stone, bentonite and coal and further conveyed to pelletising discs for production of green pellets. These are screened, dried and pre-heated, fired at high temperatures and cooled. The operations at Kudremukh and Mangalore are linked by a advanced telecommunication network. The company claims to have installed effluent treatment plant at Mangalore to treat effluent water before disposal.

The NEERI has conducted its studies only at the mining area. The pipeline and further processing activity at Mangalore involves considerable air and water pollution and high risk to environment and marine ecology, and has been completely ignored by the NEERI study team, even though a mention has been made in the scope / terms of reference for the EIA study.

As such the study remains incomplete and the CEIA submitted to the Government is also inadequate and biased in favour of KIOCL, therefore NEERI Report is not admissible in its present form.

vi) KIOCL diverting the river without permission

It is mentioned in 1.3.5 (a) (11) of the CEIA that two rock dams have been constructed, in addition to the Lakhya Dam and also mentions that the company has diverted Kudremukh hole, by constructing a channel of 900 m. length at a cost of Rs. 103 lakhs.

The above acts are in violation of Section 46, of the Karnataka Irrigation Act 1964, which prohibits putting up construction across water bodies or control of water bodies without the previous sanction of the State Government, as evidenced in our report.

The company has not obtained the requisite permissions for putting up the above constructions, but has pleaded with the Government for ex-post facto approval for its misdemeanors!

vii) NEERI bungles with floral and faunal studies

Random sampling by adopting quadrate method with quadrate divisions to study the density of species, diversity of species, frequency of occurrence, and distribution pattern

have not been adopted. Density determination is one of the tools in impact determination. The diversity is determined by natural or anthroponic activities and some species have greater tolerance compared to others in a given situation.

To know the effect of mining, the study team should have looked into the number of species and total number of individuals in all quadrates and tabulated them to indicate the richness in species. Diversity index by applying Shannon and Wiener's method or any other method should have been adopted. Frequency estimation studies are inadequate and missing.

Even the distribution pattern viz., regular, contagious and random have not been projected in the floral studies, which is important to detect the pattern of distribution and determine the characterisation of vegetation. Intrinsic and extrinsic factors affecting the vegetation pattern are not discussed.

Only such studies can throw light on the impact of mining on vegetation and forest cover.

The NEERI study team has not conducted any studies at all on flora and fauna. They have blindly compiled the data from Forest Dept or KIOCL publications of and reported them in the CEIA.

The company claims to have afforested 1224.20 ha by planting 75 lakh saplings.

It does not offer a clue as to the density or survival ratio of these saplings. While many of them are stunted and hardly 6 to 12 inches in circumference at shoulder height, many others have wilted and perished.

This is especially so in the abandoned mine area.

Just to prove our point we would like to reproduce some paras from the KIOCL letter the The Chief Engineer, WRDO, on Nov. 16/1991

"4. With a view to preserve the ecology and improve the afforestation after complete of the project and full mineral resources are exhausted, we have developed a plan by which a large number of seedlings will be planted on the tailings deposit to enable good forest growth. We as an experimental measure, have planted seedlings on the terrace of the existing Lakhya dam and the survival rate has been very good. In the circumstances,

a good forest tree growth is assured on the terrace of tailings deposits and thus there can be no wash off of any silt etc., into river even during heavy monsoon in future".

Exactly opposite a finding has been noticed by CES in its report which has confirmed that there is very low diversity and there is no regeneration in the abandoned mine belt. This has been further endorsed by the Deputy Conservator of Forests, Kudremukh Wildlife Division, in letter No. C3/CR/30/KNP/99-2000, dated 30.6.2000 to the D.C. and Settlement Officer, Chikmagalur.

"Exposure of these areas the soil cover and disturbs the site. The already existing mining site is a proof of this as not even a blade of grass grows in the mined area, where the top soil has been disturbed". The Forest Officer wrote added in the same letter "The loss of soil cover is too evident from a mere look at the mined area as well as the colour of the water of Bhadra river before and after it passes through the mining site. Though the technical studies have been initiated to assess the actual extent of soil loss, but the facts are too visible and easy to understand. The use of heavy machinery will lead to soil compaction which cannot allow regeneration of the area in any manner.

So it is clearly evident that the NEERI study team has blindly collected the data from the KIOCL and projected them.

How can any one consider these failed afforestation programmes as sound environment management plans.

Certainly, the NEERI study has no earthly use at present. No wonder a similar report of NEERI's was rejected by the environment committee of Gujarat, after a public hearing held in May 2001, to clear the motor spirit quality upgradation project of Indian Oil Corporation.

The environment impact assessment prepared by NEERI was rejected following the hearing of eminent environmentalists of Gujarat and IOC has to now engage another organisation to prepare a fresh EIA report.

ix) NEERI Report - Howler's Galore ?

The CEIA prepared by NEERI has many short commings in respect of floral and faunal studies. Many species are repeated or synonyms included separately in the list and the

occurrence of some are doubtful in the region. Some strange names are mentioned for eg : - 'Wild Sheep' is included in the list of wildlife and the occurrence of 'Black-Buck' (194 in number) takes the cake. Among birds "Black-naped circle" is mentioned, which needs some soul searching. But one misfit statement stands the best of all (Page no. 2.15) Assessment of fauna due to the availability of food in local forests, the wildlife in the study do not migrate from one forest to another in search of food".

To counter this statement, we are providing a note by a CES Scientist, from a Newspaper Report

Kudremukh, the key link in elephant corridor?, Indian Express, dated 7th July 2000

Even as the Centre plans to denotify the Kudremukh National Park in Chikmagalur district to accommodate further mining in the area, a small number of elephants are trying to make this region their new habitat.

Research by scientists of Indian Institute of Science, who were making a survey to identify elephant corridors in the whole South India under the 'Asian Elephant Research and Conservation' Project has revealed that the Kudremukh area had never witnessed elephants in the past. The nearest elephant habitat to Kudremukh was the Bhadra Wildlife Sanctuary. But, during the last two years, the villages around Kudremukh have witnessed elephants visiting the area, which indicated that some elephants from the Bhadra or Subrahmanya might be trying to make Kudremukh might be trying to make Kudremukh as their 'refugia' (a habitat supporting small group).

Speaking to this newspaper, Surendra Varma, who conducted the survey in 108 villages around Kudremukh during 1997, said proper research had to be done on the elephants visiting the Kudremukh area.

"We don't know how many elephants are in Kudremukh now and from where these elephants have come from. We also have to make a detailed study whether Kudremukh can support a reasonable number of elephants. If you visit the Kudremukh forests from Naravi side, you find foot hills consisting of bamboo, grass and acacia species of plants, which make a good elephant habitat," Varma said.

"In the first place we have to establish where these elephants are visiting Kudremukh. One chance is that from Bhadra Wildlife Sanctuary, where the male-female ratio of elephants is good. They pass through human habitat to reach Kudremukh. Another chance is that they might come from Subrahmany. In any case, Kudremukh can play be a crucial junction of the elephant corridor from Pushpagiri in Coorg to Dandeli," Varma said.

"Refugias are not new concept. Weaker elephants in good habitats always migrate to another habitat like Brahmagiri, which shelters such elephants from Nagarhole and Wynad and Mukurthi, which shelters such elephants from Mudhumalai and Gundur. Comprehensive research would establish whether Kudremukh would be a refugia or a crucial link in the southern elephant corridor," Varma said.

The *prima facie* evidence reveals that Kudremukh itself can support a good number of elephants.

"The forests in Kudremukh are either moist deciduous or deciduous, very few humans are found in the area and the environment is relatively undisturbed," Varma added. The NEERI report claims that there was no endemic flora and fauna in the study area, which is in stark contrast to the findings by the CES team, who have given an exhaustive account of endemism in their report.

There are many such howlers in the CEIA but we feel that the nine points discussed by us are enough to prove that the CEIA prepared by NEERI is not only pro KIOCL and superficial but also needs to be discarded as "dear to any price".

x) NEERI withholds crucial water sampling data!

The NEERI, conducted a long term study, extending through monsoon months, but surprisingly they have withheld the data on water quality and sediment flows collected during the monsoon months.

This data was crucial for comparing the pre-monsoon, monsoon, and post monsoon data analysis and interpretation. Sediment wash from the mine area will be high during the high flow period. The effectiveness of the Lakhya dam and the two pollution control dams in arresting the sediment wash from the runoff is very critical from the view point of sediment depositions along the Bhadra river, down stream of the mining area.

Photographs depicting heavy iron ore deposits on the Banks of River Bhadra at Balehonnur, 15 Kms, down stream of the mining area during monsoon (Pic 10) speaks volumes about the silt load.

As such the crucial monsoon data is missing, the NEERI report needs to be rejected for its diluted interpretation of the sedimentation problem with deficient data.

xi) NEERI Report confirms encroachment of Forest land by the KIOCL

The Neeri Report has confirmed that 340 ha of forest area outside the mine lease area has been encroached upon by KIOCL without the permission of Forest Department as mandatory under the Forest Conservation act.

The Principal Conservator of Forests had in his letter dated 17.9.1997 No. A/5 GFL.CR.231/92-93 had also urged the Secretary, Forest, Ecology and Environment Department to prosecute the company for this encroachment, which was also endorsed by the Government of India in letter dated 13.3.97. Pic.8, shows the shola forest valley submerged by Lakhya dam, outside the mining lease area.

The company has all along projected itself as a law abiding company but the truth is exactly the opposite as evidenced by the investigation team in more than a dozen instances.

Chapter III

Extracts from Centre for Ecological Sciences (CES) of IISc. Report

The Government of India, vide letter dated 16.7.1999, accorded extension of the mining lease for a period of one year from July 1999 to July 2000 and had interalia directed the State Government to initiate studies on the impact of mining of flora and fauna in this area by reputed wildlife Institute.

The centre for ecological studies of the Indian Institute of Science, Bangalore was entrusted with this task. They have since come out with their findings in their rapid assessment in January 2001.

We are reproducing extracts of the report titled **IMPACT OF IRON ORE MINING ON THE FLORA AND FAUNA OF KUDREMUKH NATIONAL PARK AND ENVIRONS – A RAPID ASSESSMENT** as under :

EXECUTIVE SUMMARY - EXTRACTS ONLY

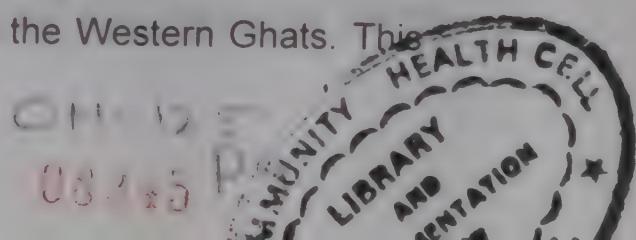
1. The Kudremukh National Park (Karnataka), named after the prominent peak of 1892 m above sea level in the Western Ghats chain of peninsular India, covers an area of 600 km across the high rainfall areas along the western slopes and the mid-elevation plateaus and hills. It is the largest declared Protected Area of a tropical wet evergreen type of forest in Karnataka.
2. The Western Ghats have been identified as one of the 18 "hot spots" of global biodiversity. They are also part of the "Global 200" regions identified by World Wildlife Fund for concentrating conservation efforts. Ministry of Environment and Forests, Government of India, have also a special research and conservation programme for the Western Ghats.
3. The Principal Chief Conservator of Forests (Wildlife) and Chief Wildlife Warden, Karnataka, approached the Indian Institute of Science, vide letter dated 14-09-1999, to "carry out studies on impact of mining on flora and fauna of Kudremukh National

Park, as desired by the Government of India" because the lease to KIOCL for mining operations has expired and a decision had to be taken for renewal. Accordingly, the study was initiated in early August 2000.

4. The mining project site is situated in a high rainfall area with an annual rainfall averaging about 6500 mm, most of which occurs during the monsoon months of June to September. This region is also the catchment for three major rivers of Karnataka, the Bhadra, the Tunga and the Nethravati.
5. Water quality of surface water was analysed during the post-monsoon period by selecting several samples (about 25 in number) at suitable locations in the river Bhadra flowing through the mine leased area and nallahs and streams which are tributaries to Bhadra, during the post-monsoon period. It was observed that concentrations of the inorganic parameters including Iron in the surface water at all the locations, during the post-monsoon months of Oct-Nov 2000, are below the maximum limits specified in the standards (Indian Standard for Drinking Water: BIS 10500 - 1991) for drinking water. The dissolved oxygen and pH are found to be acceptable. The dissolved Iron (Fe) which is the main constituent of the ore deposit in the mining area is also found to be within the limits specified in the standards.
6. In general, it was also observed that the concentrations in the dug wells at villages downstream at all the sampled locations satisfy the maximum limits specified in the standards (BIS 10500 -1991). The dissolved Iron concentrations in these water samples at some locations exceed the limits specified in the standards. The samples collected in the bore wells show higher concentrations of Iron when compared with concentrations observed in the surface water and in dug wells, perhaps due to lower dissolved oxygen levels.
7. A earlier study by National Environmental Engineering Research Institute (NEERI) found that the surface waters at locations where mine discharges reach Bhadra river have concentrations in excess of the limits specified by the standards during the immediate post-monsoon season.

However, even the longer term studies of NEERI extending through the monsoon period have not made any observations during the monsoon period which might be critical in terms of water quality.

8. From the data available to us on silt loads in the Bhadra river and sediments, which mostly pertains to the period after the mining started at Kudremukh, it is not possible to quantitatively assess the negative impact of mining and its significance on the Bhadra reservoir. This is an important aspect that has to be addressed through a separate, comprehensive study
9. Atmospheric dust due to the mining operations was not examined in our study as it does not seem to be a problem from the earlier studies by NEERI. KIOCL has also taken several steps to contain dust during the dry months.
10. Kudremukh National Park has high levels of plant and animal diversity, being one of the richest of similar locations in the Western Ghats. As compared to the relatively pristine habitats of Kudremukh the abandoned mine areas showed paucity or near-absence of several plant and animal groups we examined in this rapid assessment of biodiversity.
11. We compiled a list of 392 species of flowering plants during this short survey and from the literature. Quantitative sampling showed that the evergreen forests of Kudremukh National Park have high levels of flowering plant (particularly woody) diversity, comparable to or exceeding several other similarly-located sites in the Western Ghats, including the well-known Silent Valley in Kerala. The grasslands of Kudremukh too have their distinctive species composition and luxuriant growth. While several species of grasses and other herbs have come into the abandoned mine area, these are found in much lower abundance and insufficient, as yet, to stabilize the broken soil. There was no regeneration of shola forest species in the abandoned mine belt.
12. The Kudremukh region supports the largest breeding population of the Lion-tailed Macaque, a highly endangered primate that is endemic to the Western Ghats. This



region is also important for the Tiger that is a highly endangered mammal in the country. Several mammals found at Kudremukh are listed in Schedule 1 of India's Wildlife (Protection) Act of 1972, that confers the highest levels of protection to these species. In total, 42 species of mammals occur in the Kudremukh National Park. The abandoned mining area show only a few instances of mammals straying in.

13. Of the 169 species of birds listed for Kudremukh, 156 species were directly observed during our studies. These include several specialist birds of the evergreen forests and of the grasslands. As opposed to the occurrence of these habitat specialists of high conservation value in the more pristine areas, the region of Malleswara township and mining area showed only the presence of generalists of low conservation value such as Crow, Common Myna, House Sparrow, Ashy Drongo, etc. that show undesirable intrusion.
14. The herpetofaunal (amphibian and reptile) diversity of Kudremukh was rich with 34 species of amphibians and 54 species of reptiles observed. Many of these are again habitat specialists and endemic to the Western Ghats. The disturbed areas around mines or abandoned mine areas showed few species or a virtual absence of herpetofauna that are sensitive indicators of habitat quality.
15. About 149 species of butterflies were recorded at Kudremukh, of which 13 are endemic to the Western Ghats. Species richness was high in the evergreen forests. Nellibeedu had a distinctive butterfly community. The mining area was very poor in butterflies.

(Page vii of the CES report)

There is no evidence that mere planting of seedlings of several species in areas subject to open cast mining is going to bring these under forest cover. The first step would be to stabilize the soil through the growth of herbaceous plants and other means before attempting large scale planting. Reclamation of a hilly area in a high rainfall zone broken up by open cast mining will be an arduous task.

24. The total quantity mined in 420 ha of leased area up to Jan 1999 is 227.5 million tonnes; the waste from this concentrate has submerged around 572 ha of a shola forest

valley in Lakhya Reservoir. An additional 132.7 million tonnes of iron ore is further available for mining in the already broken area as on Jan 1999. The proposal by KIOCL to build a 95 meter high earth fill dam across Kachige Holey stream (a tributary of River Bhadra) for the storage of iron ore waste tailing, will submerge an additional 210 ha of wildlife habitat in the National Park. The Kachige Holey Dam seems to be a requisite if the mining activities have to continue in the existing broken area beyond a few months or a couple of years at most, unless the waste from Lakhya Hole is removed in significant quantities for other use.

25. There is a proposal by KIOCL to mine new areas of Kudremukh National Park at Gangdikal and Nellibeedu. This will additionally directly open up 912 ha and 321ha respectively, of grasslands and shola forests, in addition to indirect effects such as constructing dams across more valleys for storing the waste. **The proposed new areas for mining are almost 3 times the size of the present mined area.** We strongly recommend against the opening up of any new areas within the Kudremukh National Park for iron ore mining. In particular, the opening up of Gangdikal would have a permanent effect of fragmenting the Kudremukh plateau between the northern and southern portions, plus make impacts on the Tunga river system which is at present not under the influence of mining. This would make it totally incompatible with the existence of a National Park in this biodiversity-rich region.

(page 7 of the CES report)

Hydrology and Water Quality in the Kudremukh Region

2.1 INTRODUCTION

The Bhadra river flows across the leased area of the project, and a number of small nallahs and streams join the river in the vicinity of the project. The mining area is situated to the south of the Bhadra river (there are two major river valleys projects downstream of the river systems flowing through this region; these are the Bhadra reservoir at Lakkavalli and the Tungabhadra Project at Hospet. The Kudremukh Hole flows adjacent to the mining area on the eastern side, and the Kachige Hole to the west. Both these streams join the Bhadra river close to the mining area, on the south side of the river. In addition, the Singasara Hole, the Lakhya Hole, and the Kuniya Hole join the Bhadra river from the north side of the river, close to the mining area. (see Map 2.1) The

hydrology of the Kudremukh region is characterised by high intensity rainfall with an annual average of about 6500 mm, and a number of small streams with steep bed-slopes.

In this study, the impact of the mining on the quality of the river water up to a distance of about 35 km downstream of the mine~ is examined. Two critical flow scenarios are relevant from point of view of water quality. One, the low flow scenario which occurs during the non-monsoon season, when the stream flows are mainly due to base flow, and two, the high-flow scenario which occurs during the monsoon season when a major contribution to the stream flow is from surface runoff. Sediment wash from the mine area will be high during the high flow period, while concentration of some critical pollutants could be high during the low flow period because of poor dilution potential of the streams. Also, the effectiveness of the two pollution control dams in arresting the sediment wash from the runoff is very critical from the view point of sediment depositions along the Bhadra river, downstream of the mining area.

Since this study was commissioned only in August 2000 and the time of completion of the study was specified to be January 2001, data on water quality and sediment flows during the monsoon months of June, July and August 2000 could not be collected. This is a major limitation of the present study, because these data are very critical during the monsoon months. The effectiveness of the pollution control dams to arrest the silt from flowing into the streams can also be examined only during the monsoon period when the high intensity of rainfall results in a significant rate of siltation. The earlier longer term study conducted by the National Environmental Engineering Research Institute, NEERI (2000), which extended through the monsoon months, also surprisingly did not consider the data during the monsoon periods, and thus that study also suffers from the same limitation as the present study.

For the impact studies on water quality to be meaningful, at least one set of data each during pre-monsoon, monsoon and post-monsoon seasons should be collected and analysed, which could not be done in our present, short-term study. The data collected in our study corresponds to the post-monsoon, low flow period only. Our study also took place at a time when the KIOCL mining operations had halted temporarily because of a

pipeline burst that had to be repaired. These major limitations have to be kept in mind when the results of the analysis and interpreted and conclusions drawn from them.

(Page 12 of the CES report)

5. Since in the present study sampling could be made only during post-monsoon period, data made available from the earlier studies (NEERI, 2000) can also reviewed. These earlier studies consider data pertaining to more than one season. It is noted that the surface waters at locations where mine discharges reach Bhadra river have concentrations in excess of the limits specified by the standards during the immediate post-monsoon season. A reduction in the concentration is noticed at many sampling locations during the winter and summer seasons. The general trend is that higher concentrations of Iron occur during post-monsoon with reductions in the later seasons, and this trend is similar at many observed surface water sampling locations. This indicates a possibility of much higher concentrations of Iron in surface water during the beginning of monsoon in comparison to post-monsoon observations. It is also observed from the NEERI studies that, the concentrations of Iron are high in the overflow from the Pollution Control Dam -II (1.68 mg/l), the seepage from Lakhya dam (1.11 mg/l) and the discharges from the Kudremukh Holey (0.8 mg/l) even during the post-monsoon seasons. However, the longer term studies of NEERI extending through the monsoon period have not made any observations during the monsoon period which might be critical in terms of water quality.

6. The sediments carried by the runoff from the mine area are trapped by the pollution control dams (PCD-I and PCD-II). Current operations by KIOCL involve periodic removal and reuse of these sediments trapped in the upstream of the dams. Any discontinuation of this operation can cause large increase in sediment loads in the Bhadra river.

7. It is observed that the sediments in the Bhadra river downstream of the mine leased area contain Iron in insoluble form. Any change in the quality of water such as decrease in the dissolved oxygen or pH will convert insoluble Iron into more soluble form. Any industrial or municipal effluents discharged into the river can increase the concentration of Iron in the river system.

The Lakhya dam that holds mine waste and sludge~ from mine operations is critical for preserving the water quality in the Bhadra river. Any breach resulting from discontinuation of or improper maintenance can cause effects which might be catastrophic.

From the data available to us on silt loads in the Bhadra river and sediments, which mostly pertains to the period after the mining started at Kudremukh, it is not possible to quantitatively assess the negative impact of mining and its significance on the Bhadra reservoir. However, it is possible to get reasonable estimates of the impact by making a separate comprehensive study of the siltation and sedimentation issues due to the mining operation.

(Page 15-20 of the CES report)

The grasslands of Kudremukh can be classified as the *Arundinella – Chrysopogon* or *Arundinella – Psudanthistria* type according to the standard classification of grasslands (Puri et al. 1983). The common grasses we found at Kudremukh in our sampling of various sites are *Arundinella purpurea*, *Psudanthistria umbellata*, *Ischaemum indicum* and *Chrysopogon hakeleii*. Grasses such as *Dimeria ornithopoda*, characteristic of undisturbed grasslands, are seen in places such as Kuringal. The Gangdikal area has a high abundance of *Arundinella purpurea* and *Chrysopogon hakeleii*. Although the abandoned mining area had several species of grasses, the percentage grass cover was the lowest of all sites samples (Table 3.2.4). Typical root parasites such as *Striga* sp. and *Aeginetia indica* are seen among the grasses. Common herbs in the grasslands include *Canscra diffusa*, *Curcuma oligantha*, *Desmodium triflorum*, *Alysicarpus* sp., *Atylosia* sp., *Tephrosia* sp., *Smithia conferta* and *Cassia mimosoides*.

3.3 MAMMAL DIVERSITY of CES report

INTRODUCTION

Kudremukh National Park offers a diversity of physical and vegetational formations that harbour an equally varied mammalian fauna. This National Park is the widest and largest block of wildlife habitat in the central and northern Western Ghats. The higher elevations are dominated by shola- grassland formations, medium elevations by contiguous

rainforests and lower elevation by secondary forest formations. Thus resource availability for mammals is expected to vary altitudinally, inducing significant seasonal movements associated with plant phenology.

METHODS

Field investigations were spread over three months from September 2000. This rapid survey was undertaken to assess the status of mammalian fauna in different parts of the Park. Relative dung and pellet abundance was assessed by laying fixed-width transects (50m x 2m) in grasslands and moist deciduous and evergreen forest patches. A total number of fifty four pellet plots were laid in forest patches and fifty one in grasslands. Sherman traps were used to assess the relative abundance of rodents. A total no of 340 traps were kept in forest patches and 200 traps were kept in grasslands. Camera traps were also used to record the presence of large mammals in the sampled area covering both grassland and forest patches.

RESULTS

Sambar, Gaur, Hare and Elephant were recorded in the pellet surveys. Photographic evidence was obtained for Gaur, Porcupine and Palm Civet using Camera Traps. Two species of rodents and shrews were trapped in the Sherman traps. Direct observational surveys and assessment of habitat suitability indicated the presence of mammals like: Lontailed Macaque, Muntjac, Tiger, Palm Civet, Bonnet Macaque, Malabar Giant Squirrel, Common Langur, Indian Elephant, Gaur, Jackal, Ruddy Mongoose, Dusky Striped Palm Squirrel, Large Brown Flying Squirrel and the Pteropus fruit bat.

Based on preliminary assessments, at least 42 species of mammals are known to occur in Kudremukh National Park (Appendix 3). This list is rather incomplete and does not contain many additional species from the orders Chiroptera (bats) and Rodentia (rats) that undoubtedly occur there. A list of mammals for Kudremukh National Park along with their status in terms of rarity, endangerment and threat is given in Appendix 3. The rare, threatened and endangered species. Details of the surveys of scats of large carnivores and the sightings of large mammals encountered during the year 2000 are given in Table 3.3.1 and Table 3.3.2.

Four endemic species of conservation significance occur in this region: Lion-tailed Macaque, Malabar Civet, Brown Palm Civet and Small Travancore Flying Squirrel. The Park has perhaps the largest populations of Lion-tailed Macaques in the entire Western Ghats. This primate is highly endangered and endemic to Western Ghats. Several other rare species known to occur in this region are Indian Wild Dog, Dusky Striped Squirrel, Malabar Giant Squirrel and Bonnet Macaque. There is no definitive information available on the occurrence of other endemic species like Indian Tree Shrew, Brown Mongoose, Nilgiri Marten, Small Travancore Flying Squirrel and Malabar Spiny Door-mouse. However, these are likely to occur in this region based on their general habitat preferences and distributional range.

REVIEW OF EARLIER MAMMAL SURVEYS

Because of its uniqueness, Kudremukh has attracted the attention of wildlife biologists and there have been a few surveys of fauna in this region. Davidar (1980) was the first to undertake an ecological reconnaissance survey of the region and highlight the ecological sensitivity of the area. She also examined the status of forests and wildlife, investigated major threats to wildlife and tried to look at some of the possible impacts of mining operations on wildlife in this area.

Karanth (1984; 1985) undertook a more detailed and systematic survey of the distribution of the endangered lion tailed macaque in Karnataka during 1983-84. He observed that suitable and extensive rainforest habitat for Lion-tailed Macaque existed in Kudremukh and that the tract probably harboured the largest contiguous population of lion tailed macaques in the western Ghats (Karanth 1984). He further suggested that Lion-tailed Macaques could be effectively used as a 'flagship' species to conserve the entire biotic community in the region and prepared a conservation plan for survival of wild population of Lion-tailed Macaques in the region delineating the present national park area as a proposed nature reserve (Karanth 1992). Based on his report, the Karnataka State Wildlife Advisory Board suggested to the Government that Kudremukh National Park be created. Subsequently, the notification of the national park was declared.

Singh et al. (2000) carried out an intensive study on the status of Lion-tailed Macaque in Sringeri range of Kudremukh National Park. Their study has reaffirmed the fact that Kudremukh supports the largest breeding population of Lion-tailed Macaques anywhere in Western Ghats. They also observed that since rainforests are contiguous in fairly long stretches in Kudremukh, the region serves as the best habitat for sustaining a biologically viable population of Lion-tailed Macaques in the wild. In other parts of Western Ghats where suitable habitat still exist for this primate, fragmentation of habitat and isolation of groups has been the major threat for the survival of Lion-tailed Macaques (Kumar et al 1995).

Madhusudan and Karanth (In Press) indicated the presence of at least 26 species of mammals in Kudremukh region. However, they found vast stretches of relatively intact habitat, which could support large mammals if they can be effectively protected from hunting and other anthropogenic pressures caused by habitat fragmentation. More recently, Karanth and his team carried an extensive survey to assess the status of large carnivores and their prey in Kudremukh. They invested a sampling effort of 622 Km doing surveys on foot in all the potential habitat for tigers and prey species in this region. The preliminary investigations have indicated that this area has a high potential for tiger conservation. Because of its relatively high density of large ungulate prey such as gaur and sambar, Kudremukh is probably one of the few areas in the tropical rainforests of Western Ghats where a potentially viable population of wild tigers can be recovered and established. At present it is certainly one of the few places along the ridge of the Western Ghats where adult breeding tigresses are able to raise cubs. A global level assessment of potential tiger habitats by Wildlife Conservation Society and World Wildlife Fund - US has identified the black of forests in the Western Ghats that contains Kudremukh as one of the global priority Tiger Conservation Units and designated it as TCU-55 (Wickramanayake et al. 1999).

3.4 BIRD DIVERSITY of CES report

METHODS:

Birds were sampled between 6.00 AM and 9.00 AM during November and December 2000. Transect method was used to quantify the species of birds, their frequency of

sighting and abundance. Each transect of approximately 500m length with 50m on either side was walked at uniform pace in one hour (Daniels 1989, Pramod, 1997). All the individuals seen or heard were recorded for a transect line. Identifications are based on Book of Indian Birds (Ali, 1996). Seven transects were completed during the period for quantification. In addition to this quantitative sampling, a detailed checklist of birds was also made while perambulating the area.

RESULTS AND DISCUSSION:

The number of bird species reported authentically from Kudremukh National Park is 169 species (Davidar 1980, Gadgil et al. 2000) of which 8 species are Western Ghats endemics (Appendix 4). The present study encountered 156 species of birds (including species recorded by one of our researchers working in KMNP over the past year). Bird species richness of the Kudremukh NP area is comparable to other bird rich areas in Western Ghats (Table 3.4.1). Of the 16 species of Western Ghat endemic birds, 8 are present in KMNP. This includes montane evergreen forest specialists like Black and Orange flycatcher (*Muscicapa nigrorufa*) and Whitebellied Blue flycatcher (*Muscicappa pallipes*). Other non-endemic birds, with high conservation significance like Great Black Woodpecker (*Dryocopus javensis*), Great Pied Hornbill (*Buceros bicornis*), Ceylon Frogmouth (*Batrachostomus moniliger*) and Woodcock (*Scolopax rusticola*) are also present in the evergreen forests of this area.

The study shows the presence of three bird communities in the area with distinct species composition (Fig. 3.4.1). They correspond to three major habitat types, grasslands, forests and human habitation. Evergreen forests of Bhagavati valley had 21 bird species. While the natural grasslands of Gangdikal had only 7 bird species, these are habitat specialists such as Pipi^c (*Anthus* sp.), Kestral (*Falco tinnunculus*) and Harrier (*Circus* sp.) of relatively high conservation value (Daniel et al. 1991).

Although a large number of bird species (c. 25 species) was recorded in the Malleswara township area, the species encountered are widespread habitat generalists such as Crows (*Corvus* sp.), Common Myna (*Acridotheres tristis*), House Sparrow (*Passer domesticus*), Pariah Kite (*Milvus migrans*). The intrusion of human habitation into natural forests and grasslands thus encourages the spread of these common birds with low conservation value, a highly undesirable phenomenon.

Although an equal effort was made to sample abandoned and active mining area, hardly any birds were encountered. While no birds were recorded in the broken mine area, only four bird species were recorded near the mining office. They are Common Myna (*Acridotherus tristis*), Ashy Drongo (*Dicrurus leucophaeus*), Bluewinged Parakeet (*Psittacula columboides*) and Dull Green Leaf Warbler (*Phylloscopus trochiloides*). None of these are habitat specialists. The presence of forest birds such as Bluewinged Parakeet is only a spillover from neighbouring forest patches.

3.5 HERPETOFAUNAL (AMPHIBIAN AND REPTILE) DIVERSITY METHODS of CES report

This study focussed on sampling of herpetofaunal diversity in three distinct areas with varying levels of disturbance within the region of Kudremukh National Park. These included:

- a) Undisturbed tropical evergreen forests in Kudremukh National Park. The sites included Bhagavathi, Kadambi, Nellibeedu and Kerekatte. b) Disturbed standing evergreen forests within the area leased to KIOCL. c) Abandoned mining area.

The sampling of these sites was conducted during December 2000 and the first fortnight of January 2001. After the selection of suitable sampling sites, data were collected giving equal weighting in terms of effort, time and area surveyed. The time for sampling was early hours of the day, late in the evening and during the night. Apart from systematic sampling, opportunistic sampling was done both during early hours of the day and late night in all sites. The identification and status assessment of herpetofauna were based on sightings, tracks, road kills, calls (in case of amphibians) and other evidences. References used for identification and listing include Daniel (1963, 1975, 1983), Daniel and Sekar (1989), Murthy (1990), Pillai (1999) and Whittaker (1978).

RESULTS AND DISCUSSION

In all, the study recorded 34 species of Amphibians and 54 species of reptiles. Most records were noticed from the undisturbed evergreen forests, a few in the disturbed forests of the mining and . only two species in the abandoned mining area.

The natural forests are excellent habitats for various endemic species and an indicative list includes *Nyctibatrachus* sp. and *Ansonia ornata* among frogs, *Geoemyda silvatica*

(Forest Cane Turtle) and *Indotestudo forestieri* (Travancore Tortoise), *Draco dussumieri* (Western Ghats Flying Lizard), *Salea* sp. (Agamid Lizards), *Ristella* sp. (Skink), *Uropeltidae* sp. (Shieldtail snakes), *Chrysopelea ornata ornata* (Indian Ornate Flying Snake), *Ophiophagus hannah* (King Cobra), and *Trimeresurus* sp. (Pit vipers).

A taxonomic list of amphibians (Appendix 5) and reptiles (Appendix 6) recorded from the tropical evergreen forests of the Kudremukh National Park has been appended along with IUCN threat status (Molur and Walker 1998a and 1998b). A listing of the Amphibian and Reptilian species encountered during the quantitative sampling in the study sites is given in Tables 3.5.1 and 3.5.2. It is clear from these observations that the rich species diversity of the region, evident from the undisturbed Kudremukh National Park sites, is threatened within the mining areas and environs. A more substantive assessment across all seasons, especially the wet summer months when amphibians are easier to observe, would perhaps provide a more accurate description of the threat to such endemic species from mining activity.

Amphibians are most indicative of the threats to sensitive habitats, such as the Kudremukh National Park. To illustrate the degree of such threats from the ongoing mining activities and other anthropological factors, a compilation of amphibians found in the region is provided, along with their habitat, endemism and IUCN threat status is included as Appendix 5. (Read as Annexure 16)

Several habitat specialist Reptilian species are also found in the study area. *Draco dussumieri*, the flying lizard in the Western Ghats, a highly endangered species, is found in this area. Similarly, another species in this region is *Chrysopelea ornata*, Flying Snake. These are specialist species dependent on undisturbed habitat for survival. *Ophiophagus hannah* King Cobra, is another such species that inhabits the Kudremukh forest. It is the largest venomous snake in the world, and is at the apex of the food pyramid amongst snakes, as it feeds exclusively on other snakes

Uropeltidae sp., Shield Tails, the entire family being endemic to Western Ghats, are frequently found in the evergreen forests of Kudremukh. Very little of the biology and behaviour of this snake is known, considering that they are specialised burrowers, and play a critical role in forming forest soils. Even though only one species of this snake was found during this short investigation, the literature reports a greater variety of such species in the region. *Trimeresurus* spp., Pit Vipers, are again another notable group of

snakes found in the Kudremukh forests. These snakes are exclusive forest dwellers and are not known to survive in other areas.

3.6 FISH DIVERSITY of CES report

METHODS

Fishes were sampled using gill nets, cast nets and other conventional methods such as sieving through cloth. All the sites were sampled with uniform efforts to get an idea of the abundance of each species. Each site was sampled by operating cast net ten times and the sieving was done for two hours. The habitat characteristics of the area such as the canopy cover, width and depth of the stream, flow rate, pollution if any and substrate distribution were noted down. The microhabitat of the each species was recorded.

The systematic identification was done with the help of several manuals and the Fauna Volumes (Day 1865, 1887 & 1889; Jayaram 1988, Kottelat et al., 1994, Menon 1987 & 1992, Dattamunshi and Srivastava, 1988, Talwar and Jhingran, 1991).

RESULTS & DISCUSSION

A total of 43 species of fishes was collected from eighteen different locations (Appendix 7). Of these *Neolissochilus wynadensis* is reported to be an endangered species and very little information is available on the range of distribution and population status. The present record is worth mentioning since it is a new record from an entirely different river system. Similarly, many other species are new records to the Thunga-Bhadra river system. *Barilius canarensis*, *Silurus wynadensis*, *Sicyopterus griseus*, *Mesonoemacheilus petrubanarescui*, *Schistura nilgiriensis* are so far known only from Kerala or Cauvery river system. *Puntius sahyadrensis*, described originally from Yenna river, Maharashtra (Talwar and Jhingran, 1991), is a new record for Karnataka.

The number of specimens collected from different locations is given in Table 3.6.1 and Fig 3.6.1. The species endemic to the Western Ghats are given in Table 3.6.2. Out of the 43 species recorded at Kudremukh National Park, 22 species (about 50%) are endemic to the Western Ghat region. Streams along the western slopes are rich in fish species (range 6-16 species) especially at the lower reaches (e.g. at Ennuhole, Manjilthar & Katari). The cyprinid species such as *Garra*, *Puntius*, and *Nemacheilus* are common in the area. The diverse substrata and clear water could be the reason for high

diversity. The Tunga and Bhadra river system upstream of the mining area also has moderate species richness with 2-14 and 5-7 species recorded, respectively.

The lowest diversity of fishes seen is in the Bhadra immediately downstream of the mining area and at Nellibeedu which is partly under mining influence (2 species each), followed by the main KIOCL mining area and Lakhya hole (4 species each).

Although the mining area (Kudremukh, Bhadra Nellibeedu) is ideal for the torrential fish species like the loaches and sucker catfish, their absence is obvious (Table 3.6.1). This could be attributed to the disturbances to the habitat. These fishes prefer substrates such as boulders, bedrocks and cobbles with fast to moderate flow rate. The food items of these fishes consists of filamentous algae adhered to the above mentioned substrates. The sediments from the mining operations plugs the crevices between the pebbles, cobbles and boulders, suppressing the algal growth. This reduces the availability food resources for loaches and sucker catfishes. The species encountered in the Kudremukh mine area are Nash's barb (*Osteochilichthys nashii*), Boopis razor belly (*Salmostoma boopis*), Jerdon's carp (*Puntius jerdoni*) and *Pseudaambassis ranga*. These species are known to tolerate turbidity and even high amount of dissolved solids in the water (Easa & Basha 1995).

From the Bhadra river (near the mining area) only two species were encountered, Giant danio (*Danio aequipinnatus*) and Mullya garra (*Garra mullya*). These two species were collected far ahead of the confluent zone of the effluent channel from the factory with the river. A high biological turbidity coupled with the slow rate of flow could be the reason for low diversity in the site. The presence of Garra here inclines is indicative of this river possibly having been inhabited by similar forms such as Ballitorine loaches, and sucker catfishes. The current disturbance in the habitat might have caused local disappearance of these pollution-sensitive species.

In Lakhya Hole, four species were recorded (*Puntius fasciatus*, *Barilius bendelisis*, *Nemachilichthys rueppelli* and *Nemachilus anguilla*). At this site, an isolated pool with clear water is inhabited by the 4 fish species but the adjacent area with turbid water and accumulated sand is absolutely without any fish species.

At Kachighole, a valley slated for another dam to retain mining wastes, it is noteworthy that the torrential habitat supports Deccan mahseer (*Tor khudree*), regarded as a highly endangered species (CAMP 1998).

(Page 22-30 of CES report)

In addition to standard diversity indices (Simpson's index, Shannon-Wiener index, Jaccard's index), the following approaches relying on underlying biological factors were used. These indices were the Biological Monitoring Working Party Score System (BMWP) and percent EPT (% Ephemeroptera, Plecoptera, Trichoptera) used for biological assessment of the sampling sites.

BMWP score: The determination of this biotic index is based on the standard table of Armitage et al., (1983). This was adopted in a modified form by Trivedi (1991) in his biomonitoring studies of Yamuna river. For calculation of BMWP score, identification to family is sufficient. A site score was obtained by summing the individual scores of all families present (Table 3.7.2). Score values for individual families reflect their pollution tolerance based on current knowledge of distribution and abundance. Pollution intolerant families have high BMWP scores, while pollution tolerant families have low scores.

% EPT: Total number of Ephemeroptera, Plecoptera and Trichoptera in a site represented as percentage of total number of individuals (Resh 1979).

RESULTS AND DISCUSSION

Aquatic insect species richness recorded for Kudremukh NP is the highest ever known for any site in Western Ghats (Sivaramakrishnan et al., 1998 and in prep.). Our study recorded 54 aquatic insect taxa, belonging to seven orders and thirty-three families from the Kudremukh area (Appendix 8). Of these, 30 taxa could be identified up to the generic level and 14 taxa up to the species level. Highest diversity was recorded from orders Odonata (dragonflies and damselflies), Ephemeroptera (mayflies) and Trichoptera (caddiesflies).

Our reference sites, representing sampling sites upstream of the mining area, had higher species richness (mean=8.2) than the mining-impacted sites (mean=6.3)(Table 3.7.3). High species richness is clearly confined to less disturbed areas in the upper catchment

of Bhadra. Families such as Leptophlebiidae, Heptageniidae, Ephemerellidae, Perlidae, Calopterygidae, Euphidae, Naucoridae, Helicopsychidae and Glossosomatidae dominate the natural stream community.

The streams and the segment of Bhadra river flowing through the lease area of KIOCL are species poor. The dominant families of the community are Baetidae, Libellulidae, Psephenidae, Dytiscidae, Hydropsychidae and Simulidae. These families are tolerant to aquatic pollution. Absence of pollution-sensitive families of aquatic insects indicates the poor quality of the water flowing through the streams of lease area. Lowest diversity was recorded at Lakhya Hole and Kachige Hole, both of which receive discharge from mining activity. The biologically poor character of impacted streams is reflected in low diversity indices (Simpson's and Shanon's) and in biomonitoring scores (BMWP and % EPT). A Cluster analysis of the data using Jaccard's dissimilarity index also clearly separates Lakhya Hole from rest of the sites (Fig 3.7.1).

3.8 BUTTERFLY DIVERSITY of CES report

METHODS

Butterflies were sampled during November and December 2000 between 10.00 AM and 1.00 PM, when their activity is at a maximum. Line transects of approximately 500m in length with 10m on either side were covered in one hour. Transects were covered in all the major habitat types, including natural forest, grassland, and abandoned mining area. All individuals seen from the transect line were recorded (Kunte, 1997). Identifications are based on Butterflies of Indian Region (Wynter – Blyth, 1957). A detailed checklist was also prepared for the area during the study period.

RESULTS

About 149 of 332 species of butterflies known from the Western Ghats species have been found at Kudremukh National Park (Appendix 9). Of these 13 species are endemic to Western Ghats. Species richness is high in the semi-evergreen forests of western slopes (25 species) and the evergreen forests of Kuringal (23 species). The evergreen forest specialists like Beak (*Libythea lepita*), Many tailed oak blue (*Thaduka multicaudata*), Staff Sergeant (*Athyma selenophora*) and Small Leopard (*Phalanta*

alcippe) characterize the community of western slopes and Kuringal. Grasslands of Kuringal were poorer with only 11 recorded species. The species present here such as Common Grass Yellow (*Eurema hecabe*), Lemon Pansy (*Junonia lemonias*), Chocolate Pansy (*Junonia iphita*), Yellow Pansy (*Junonia hirta*) etc. are typical of open sunny areas (Table 3.8.1). Nellibeedu has a distinctive butterfly species composition when compared to other sites (Fig. 3.8.1). This distinctiveness of Nellibeedu is due to the presence of a riparian patch of semi-evergreen forest that harbours a unique set of butterflies such as Common Map (*Cyrestis thyodamas*), Rustic (*Cupha erymanthis*) and Tree Nymph (*Idea malabarica*), recorded only in this locality.

Mining area was very poor in butterflies. Only three species of butterflies, Yellow Pansy (*Junonia hirta*), Lemon Pansy (*Junonia lemonias*) and Common Grass Yellow (*Eurema hecabe*) were found in the *Acacia auriculiformis* plantation of reclamation zone. All three species are habitat generalists and usually found in open sunlit areas like grasslands and roads (Kunte 2000).

(Chapter 4 of CES report)

Impact of Mining on the Biodiversity and Ecology of Kudremukh

4.1 IMPACT OF KUDREMUKH MINING PROJECT AT THE LANDSCAPE LEVEL

The science of landscape ecology essentially developed after the 1980s (Forman 1995). Concepts of landscape ecology, in combination with the principles of island biogeography and meta-population biology are now widely used as core principles in the design and management of nature reserves all over the world. Numerous scientific studies (Noss and Cooperider 1994; Pickett et al. 1997; Kramer et al. 1997) have conclusively established that large, undisturbed protected areas that are connected to each other through landscape level linkages are essential for effective conservation of biodiversity. As a result of scientific research carried out over the last three decades, **habitat fragmentation** has been identified as the single largest threat to biodiversity and biological integrity.

In this context, we note that wildlife protected areas such as Kudremukh National Park cover a total of less than 4% of India's land. Tropical rainforests worldwide, of which Kudremukh is a representation, are recognized to be under severe threat.

Habitat fragmentation depletes the biological integrity of animal and plant communities by hindering dispersal movements, normal ranging patterns, immigration and emigration of individuals in and out of populations. The adverse effects of fragmentation occur at multiple levels: At the level of gene flow within a single animal or plant species; at the level of animal and plant communities as a whole or at the level of community diversity at a regional level. Thus, fragmentation threatens biodiversity at the so-called alpha, beta and gamma levels. Recent scientific evidence (Tilman and Downing 1994; Levin 1992) also suggests that impoverishment of biodiversity may even affect the stability and functioning of entire ecosystems.

Landscape level habitat fragmentation is now also recognized as a particularly serious threat to several endangered species that inhabit the Kudremukh region. These include species that exhibit wide-ranging movements such as the Tiger, Leopard, Dhole, Sloth Bear, and Gaur. The presence of a few elephants in recent times also suggests that the Kudremukh region may have been part of a more widespread distribution of the species in the past. Fragmentation also has adverse consequences for niche specialist species such as the Lion-tailed macaque, Nilgiri Marten, Travancore Flying Squirrel, Malabar Civet and the Great Pied Hornbill, all of which find refuge in the rainforests and grasslands of Kudremukh.

Habitat fragmentation also increases opportunities for penetration of intact communities of niche specialist communities of plants and animals, by common, aggressive, sometimes exotic generalist species (often referred to as trash species in conservation biology) that ultimately replace or extirpate the rare niche specialist types of organisms. This is seen in our data, for instance, with generalist bird species such as crows, sparrows, mynahs and kites that have invaded the mining areas and surroundings, to the exclusion of habitat specialists of higher conservation value.

Yet, when the decision site the iron ore mine at Kudremukh was taken in the early 1970s knowledge of island biogeography was in its infancy and the discipline of landscape ecology had not, yet been developed. The effects and consequences of habitat fragmentation and biodiversity loss were poorly understood. Therefore, the ongoing and

potential impact of the mining operations in Kudremukh need to be considered in the light of the new scientific knowledge that has emerged since the decision to site the mine at Malleshwara was made about thirty years ago.

The process of fragmentation of the entire stretch of Western Ghats in Karnataka extending from Kutta in the south to Goa border already had already begun some decades ago through ghat roads that seriously compromising their integrity. Within this overall landscape matrix, Kudremukh and surrounding areas still comprise one of largest and most intact blocks of tropical rain forest- grassland biome in the entire Western Ghats. Before the mines were opened up, the present National Park area and the surrounding reserves forests this rainforest landscape block covered over 1000 km'. The interiors of this area were unconnected to surrounding regions by major roads or other means of transport and communication.

The establishment of the Kudremukh mines led to the opening up of an additional Ghat road at Mullur between Agumbe and Charmadi across the Western Ghats, as well as three major roads built or upgraded to move heavy machinery and maintain other project activities. These and other smaller service road building activity have led to further fragmentation problems within the entire block of originally intact rainforests. The service road that is used to maintain the pipeline to Mangalore further adds to the problem at places. We note that this road is being widened and re- laid with the consequence of about 500 trees being cut just for this purpose even as this report is being written.

The Kudremukh mines are located in a landscape that does not harbor any large lakes or natural water bodies. Because the area receives rainfall in the region of 6500 mm per annum, and still has extensive forests and grasslands that sustain stream flow through the year, the water needs of wildlife species are adequately met through these natural sources. On the other hand, the large, muddy artificial lakes formed by the Lakhya dam and the proposed Kachige Hole dam will submerge wildlife habitats and further add to the internal fragmentation of the area without providing any concurrent benefits to wildlife.

Perhaps an even more serious consequence would be the expansion of the mining activity to new areas such as Gangdikal and Nellibeedu. The iron ore deposits of

Gangdikal lie further west of the present mining around Malleswara, extending almost up to the ridge line. Any open cast mining at Gangdikal would further extend the wedge driven in from Malleswara westwards towards the ridge line, which harbours the highest levels of woody plant diversity recorded. Further, it would cause the **total fragmentation of the landscape of Kudremukh National Park** in the east-west direction across the plateau and disrupt habitat contiguity between the northern and southern parts of the Western Ghats in Karnataka.

4.2 CONCLUSIONS ON IMPACTS OF IRON ORE MINING ON THE FLORA AND FAUNA OF KUDREMUKH NATIONAL PARK

The Kudremukh National Park in Karnataka is one of the largest stretches of evergreen forests of low, mid- and high elevation along with a mosaic of shola-grasslands. The wet climate (average annual rainfall of 6500 mm, one of the highest in the country) and the tremendous water retention capacity of the vegetation in Kudremukh has led to the formation of hundreds of perennial streams, forming one of the important watershed areas of the region. These perennial streams converge to form 3 major rivers - Tunga, Bhadra and Nethravathi, which are important lifelines for the states of Karnataka and Andhra Pradesh.

Malleswara and its environs, including the township and the iron ore mining area, have driven a wedge from the east into this large and otherwise contiguous block of tropical moist forest and grassland in the Western Ghats. A total area of 420 ha of leased area has been opened up for iron-ore mining till date. Open cast mining, by its very nature is a very destructive activity, that causes virtually irreparable damage over the time period of decades or even centuries to a natural habitat. Even a cursory visual examination of the abandoned mining areas (leave along the active mining areas) would bring out the stark landscape as compared to the adjoining natural grasslands and forests. At Kudremukh this is accentuated by the extremely high rainfall characteristic of the region. It was observed that some of the shola forest valleys have not been mined but has been subjected to degradation due to soil erosion, working of heavy machinery and use of explosives for the mining operations. Hazards of landslides in the mined area are anticipated, due to tampering of underground watercourses and loose strata of the worked soil for the mining operations.

The overall impacts of the mining and associated activities on the ecology of Kudremukh National Park can be summarized mainly as the direct loss of habitat and the fragmentation of an important tract of tropical rainforest/grassland in the Western Ghats.. Some recommendations of a more general nature for the future management of the area are also given.

a) MINING IMPACT ON OVERALL BIODIVERSITY

The evergreen forests of Kudremukh National Park have high levels of flowering plant (particularly woody) diversity, comparable to or exceeding several other similarly-located sites in the Western Ghats, including the well-known Silent Valley in Kerala. The grasslands of Kudremukh too have their distinctive value and species composition, with luxuriant growth of several grasses and other herbs. The animal groups we looked at also showed high diversity levels, with several habitat specialists across the taxa.

It is clear that the areas opened up for mining and abandoned mine areas have very low diversity of most plant and animal groups we examined. While several species of grasses and other herbs have come into the abandoned mine area, these are found in much lower abundance and insufficient, as yet, to stabilize the broken soil. There is obviously no regeneration of shola forest species in the abandoned mine belt. The low diversity is also reflected in the near complete absence of most animal groups we examined. There is a paucity of mammal (but for the occasional straying in of tiger and perhaps low presence of jackal, sambar and rodents), bird, reptile, amphibian and butterfly species. The water environment in the mining-impacted area and the immediate downstream also show a poor, longer term biological quality as seen from the presence of the few fish and aquatic insects known to be tolerant to turbidity and pollution. This is interesting in view of the fact that the purely physico-chemical parameters examined in the same waters *during the post-monsoon period* satisfy the Indian standards for drinking water. Obviously these aquatic organisms are responding to longer term changes in water quality and micro-habitats.

From the biodiversity angle we would like to emphasize the value of the following species or groups. The Kudremukh region supports the largest breeding population of the Lion-tailed Macaque, a highly endangered primate that is endemic to the Western

Ghats. This region is also important for the Tiger that is a highly endangered mammal in the country. Several mammals found at Kudremukh are listed in Schedule 1 of India's Wildlife (Protection) Act of 1972, that confers the highest levels of protection to these species. Some bird species that are habitat specialists are found in the grasslands of Kudremukh. Several amphibians and reptiles, that are habitat specialists or endemic to the Western Ghats, are seen in the forests of Kudremukh. There is a possibility that new species of fishes, unrecorded in India, may be found in the pristine Bhadra-Tunga river system at Kudremukh (obviously, this needs more careful investigations). We thus strongly disagree with Sharma (1977) who gave little importance to Kudremukh as regards its wildlife.

b) IMPACT THROUGH FRAGMENTATION

Apart from the direct loss of habitat for a variety of plants and animals through open cast mining, the indirect impact on the biodiversity of the Kudremukh region has to be considered through the fragmentation effects. While Malleswara township and the mined area have made a deep intrusion into the larger ecological region of Kudremukh, we also have to consider the associated effects of facilities such as roads, power transmission lines and the slurry pipeline.

Since the inception of the iron ore mining project in the 1970s, the forests of Kudremukh were opened up for large-scale human influx (50,000 laborers were once employed; the population in 1991 was about 10600) during the construction of infrastructure facilities for the mining operations. Formation of approach roads, electric lines and pipelines have opened up some of the most inaccessible areas in the Western Ghats, to human intrusions and illegal activity in the surrounding forests.

The iron ore slurry pipeline passing through the western slopes is mostly underground. But this has also opened up many road approaches through the evergreen forests for the maintenance of the pipeline at different locations. Recently there were several incidents of leakages in the iron-ore slurry pipeline. The spread of iron ore slurry leakage is estimated to be at least 100 ha along the slopes of the forest and the rivulets downstream. The pipeline has leaked 5 times within a span of 3 years; around 4000 tonnes was leaked into the forest during each leakage. Repairing and laying of a new

pipeline to bye pass the damaged pipes obviously causes some damage to the forests of Kudremukh National Park.

We also observe that KIOCL has laid several kilometers of roads in the Nellibeedu region, outside of the leased area and within the National Park, as part of their prospecting operations for iron ore.

The total direct loss of wildlife habitat due to the project, for mining, dam, roads, electric transmission lines, pipelines etc. is around 2000 ha. The cascading ecological effects on the adjoining forests due to the project and its ancillary facilities are spread over a larger area.

c) GENERAL OBSERVATIONS ON MINING AND FUTURE MANAGEMENT

The iron ore deposits at Kudremukh are of a low grade, containing 33-38% of iron concentrate. After the beneficiation process of the iron ore it generates 62-67% iron ore waste tailings. The waste tailings needs to be disposed off or permanently stored to avoid getting washed into the river due to the high rainfall in the area. A 100m high dam was built across Lakhya stream (a tributary of River Bhadra) for iron ore waste tailing collection. This dam has submerged 572 ha of shola forest valley with iron ore waste tailings, out of which 340 ha has been submerged outside the lease area boundary as an encroachment into the National Park.

Hazards of breaching of Lakhya Dam, due to the high rainfall in the region needs to be re- examined and regularly monitored. The Lakhya Dam had come to a near disaster, when the dam had started breeching in 1992. Human habitation in the KIOCL township and the settlements 45 kms downstream along Bhadra River were evacuated to avoid a disaster. **Detailed studies on the structural stability of Lakhya earth fill dam in the longer term needs to be carried out, if the tailings are going to be permanently retained in the dam.** The future management of the Kudremukh region, whether with or without mining operations, has to invariably take adequate care of the iron ore waste tailings at Lakhya (as well as the two smaller pollution-control dams) in order to avoid any future disaster.

Three fresh water streams originate from the mining area. The high rainfall, steep slopes and loose soil in the mining site, could potentially result in severe soil erosion during the monsoon. As pollution control measures, the KIOCL has built two pollution control dams across these streams originating from the mining area. During the post-monsoon period these dams seem to be generally effective as evidenced by the acceptable quality of water downstream of the mining areas during the months of October and November. However, the effectiveness of the dams during monsoon (the crucial period) could not be monitored, as our study period was limited to a few months after the peak monsoon when mining operations had shut down for repairs to a pipeline. The longer-term study by National Environmental Engineering Research Institute (NEERI) has also not sampled the water quality during the monsoon period. The Water Resources Development Organisation (WRDO) recorded a surge in silt loads in river Bhadra downstream of the mining area during the peak monsoon months of 1983-86. Detailed studies need to be conducted, to examine the sediment contribution from mining area at Kudremukh in reducing the designed life span of Bhadra Reservoir.

Future management of the region will have to take concerted and effective measures for prevention of soil erosion, through civil and biological controls in the abandoned mining area. This task will be more complex in view of the high rainfall in this region, the hilly terrain and the nature of open cast mining.

PLANTATIONS OF EXOTIC SPECIES

There has been considerable effort in raising plantations of exotic species in the natural grasslands of the Kudremukh region. There are several observations we would like to make on this activity.

- a) The drive to cover the grasslands with: plantations of exotic species such as *Acacia auriculiformis* and *Eucalyptus* actually began with the Karnataka Forest Department (Forest Development Corporation) in the mistaken notion that these were "grassy blanks" or wastelands that had to be afforested.
- b) While it is beyond the scope of this document to go into details of the past ecological history of the Kudremukh region and of the origin of the grasslands, we wish to

emphasize the following. The montane grasslands (>1800 m asl) of the Western Ghats such as in the Nilgiris and the Anamalais have now been shown to be the natural climatic climax through irrevocable evidence from stable carbon isotopic analysis (Sukumar et al. 1993, Rajagopalan et al. 1997) and pollen (Vasanthy 1988). These montane grasslands have their unique complement of plant and animal life and need to be preserved. We recognize that the grasslands at Kudremukh occur at lower altitudes, and that some of this could be because of anthropogenic disturbances in the historical past. However, there is absolutely no biological justification for converting these grasslands into plantations of exotics.

- c) The KIOCL has continued the same trend by planting nearly 8 million saplings of *Eucalyptus* and *Acacia auriculiformis* in 2000 acres of grasslands as compensatory afforestation. The introduction of such exotic species has undesirable long-term effects on the natural grassland and the adjoining shola forest. The exotic species are hardy and are resistant to climatic factors, which will gradually dominate over the natural grasslands and perhaps even over the shola forest species.
- d) In recent months the KIOCL, realizing the importance of mixed species plantations, has also planted the seedlings of a large number of native evergreen forest trees in the abandoned mine area. While this effort itself is commendable, we feel that it is misplaced for the following reason. Evergreen forest plants require the appropriate ecological conditions of soil type, moisture and in many cases shade for their growth. Thus, there is no evidence that mere planting of seedlings of several species in areas subject to open cast mining is going to bring these under forest cover. The first step would be to stabilize the soil through the growth of herbaceous plants and other means before attempting large scale planting. Reclamation of a hilly area in a high rainfall zone broken up by open cast mining will be an arduous task.

IMPLICATIONS OF CONTINUED MINING AND FRESH MINING IN UNOPENED AREAS

The total quantity mined in 420 ha of leased area up to Jan 1999 is 227.5 million tonnes; the waste from this concentrate has submerged around 572 ha of a shola forest valley in Lakhya Reservoir. An additional 132.7 million tonnes of iron ore is further available for mining in the already broken area as on Jan 1999. There is a proposal by KIOCL to

construct a new dam to store iron ore waste tailing, as the present dam for this purpose in Lakhya Dam is almost completely filled to its capacity with waste tailings. The proposal by KIOCL to build a 95 meter high earth fill dam across Kachige Holey stream (a tributary of River Bhadra) for the storage of iron ore waste tailing, will submerge an additional 210 ha of wildlife habitat in the National Park. The Kachige Holey Dam seems to be a requisite if the mining activities have to continue in the existing broken area beyond a few months or a couple of years at most, unless the waste from Lakhya Hole is removed in significant quantities for other use.

There is a proposal by KIOCL to mine new areas of Kudremukh National Park at Gangdikal and Nellibeedu. This will additionally directly open up 912 ha and 321ha respectively, of grasslands and shola forests, in addition to indirect effects. **The proposed new areas for mining are almost 3 times the size of the present mined area.** We strongly recommend against the opening up of any new areas within the Kudremukh National Park for iron ore mining. In particular, the opening up of Gangdikal would have a permanent effect of fragmenting the Kudremukh plateau between the northern and southern portions, plus make impacts on the Tunga river system which is at present not under the influence of mining.

The Kachige Holey Dam has a total cumulative capacity of 88.85 MCM, which can only hold waste tailings of the available ore at the already broken area. **If fresh areas at Gangdikal and Nellibeedu deposits (total area 1233 ha) are to be mined, new valleys will have to be submerged for the storage of iron ore waste tailings in addition to the proposed Kachige Holey Dam, resulting in far more devastation of the landscape and biodiversity of Kudremukh.** This would be totally incompatible with the existence of a National Park in the region.

Chapter IV

Other Related Issues to KIOCL Mining in KNP

i) Issues relating to worker's compensation

The management and workers of KIOCL were aware that the mining lease was to expire by July 1999 as per the original lease deed executed between the July 1999 as per the original lease deed executed between the Government and the company on 24th July 1969.

After the area was declared as a National Park in 1987, it was amply certain that the mining had to end atleast after the lease period.

In the temporary extension permission also the Government has clearly indicated that the permission will not be any commitment on part of Central Government for final approval of renewal.

As closure of the mine was imminent, it is the onus of the company to have made prior arrangements to rehabilitate its workers, by shifting them to alternate sites or diversification of business.

In Chapter 2.5.2.4 (Page No. 2.195) of the NEERI CEIA.

The employment status for KIOCL has been dealt with in this chapter. There are a total of 1635 employees (executives 434 and worker class 1201). It is also mentioned that 40% of the employees are from nearby areas.

Elsewhere in the NEERI report it is mentioned that there exists alternate employment opportunities in agricultural and plantation sectors. The KIOCL has also admitted that due to mechanization of the mining operations, the job opportunities are thus limited.

So it is amply clear that arrangements have to be made for around 1200 workmen and 434 executives. Since the company itself has admitted it has Rs. 600 crores as reserve, this may not pose a big problem. Even exgratia in addition to other terminal benefits at

an average of Rs. 5 lakhs per head will cost only around Rs. 81 crores to the company, which has earned handsome profit of Rs. 58 crores during 1999-2000.

But as per Businessline Report (Kudremukh net drops by over 66 pc in April-Oct by Shri G. Rambabu, 14th December, 2000, Bangalore edition) the KIOCL has lost 66% of its net profit during the first seven months of 2000-2001. Main reason attributable to decline in export of concentrates by 46% and due to slurry pipe damage which hampered the production for 2 months from July to September 2000.

The export of Iron Ore by India has come down by 10% in 1998-99, due to lesser demands from Japan and South Korea. 75% of the Indian Iron Ore is exported to these two countries.

ii) Democratic process strangulated!

In March 2000, A directive was sent from the Prime Minister's Office (PMO) to the chief Secretary of Karnataka government to :-

- a) Freeze all procedures of formalizing / legalizing the declaration of Kudremukh as a National Park.
- b) Renew the existing mining licence of Kudremukh Iron Ore Company, unconditionally and prepare De-notification of all the additional areas demanded by KIOCL. (This includes Gangrikallu and Nellibeedu, which are considered as Sanctum - Sanctorum of the National Park and the Bhagavati forest block through which the KIOCL, Ore Slurry pipeline passes through)
- c) Declare other areas except the above as reserve forest.

There was a lot of pressure on the officials to fall in line with the PMO's directive and there have been letters written by Central Ministers of Mining industries, Shipping and Commerce, urging the officials to fullfil the PMO's directions.

The PMO's directive has paved the way for renewal of the lease for a further period of 20 years. Officials scurried around with files for clearance, without following the stipulated legal frame-work and environment clearance procedures. Newspaper reports have said that the Karnataka Government has already given a no objection certification

and forwarded the proposal to the Central Government for renewing the mining licence for a further period of 20 years.

It is unfortunate that our democratic set up was held at the sword's point and compelled to buckle under such extra-constitutional directives.

iii) KIOCL's duplicity in interpreting the satellite data.

KIOCL has even tried to deceive the authorities by interpreting satellite data to the company's advantage, an evidenced by a paper entitled "Ecological monitoring of Kudremukh iron ore mine area using multi temporal satellite data" published in NNRMS Bulletin, 1997, (two of the four authors are from the KIOCL!)

This paper admits that forest areas have been lost. "The conspicuous absence of mines, very limited surface water and predominant grasslands are evident in the pre mine scenario (1973). The 1988 satellite data whereby the mining activity has already been started clearly shows loss of forested area and expansion of mine and surface water. The land cover changes around 6 km radius of project area in terms of loss of forests and development of now agriculture due to increased human activities as an associated changes of mining establishment can be clearly seen.

However, the authors have interpreted that "The overall analysis of the mine lease area and the satellite data revealed positive development in the growth of plantations and conservation of landscape structure of the area as part environmental management measures undertaken".

The IISc study team have also examined this paper and have offered their comments as below :

- e) Unfortunately, this afforestation of the grasslands with the exotic species to "compensate" for the areas broken up by the mining activity has been seen by some to be "positive development". Indeed, we are amazed to read a report by Murthy et al. (1997) in which remote sensing techniques have been used to conclude that "Out of the total mine lease area, **21.41%** and **17.54%** has undergone positive (emphasis ours) and

negative changes respectively during 1973- 96 with 61.04% area remaining unchanged. This indicates a net positive development in the area over 23 years (emphasis ours)." A closer examination shows that the grasslands have been termed as wastelands and their afforestation with exotics termed positive development as opposed to the negative development of open cast mining in the rest of the area. We fail to understand how there can be any positive development in a region where a large area has been completely broken up by open cast mining and continues to remain in this state.

Refer to photograph No. 7

KIOCL's interpretation of satellite data!

Certainly KIOCL does not need a satellite image to examine a large wound on its own belly !

iv) Poor Port Facilities and Equipment

All most all International Ports have loading facility for docking vessels ranging from 250,000 DWT to 350,000 DWT.

The new Mangalore Port can at best dock only panamic vessels, which have limited capacity.

Inefficient loading equipment are also contributing to the losses. Almost all International Ports have loading facility of 1,00,000 to 1,40,000 tones per day. Where as the new Mangalore Port can load a maximum of 15,000 tones per day. Thus, the vessels are completed to que up in the open Sea and face considerable pre-berth delays. Thus, exporters are loosing around Rs. 300 per tonne as compared to International Ports including Australia. Upgradation and modernization plans are yet to be implemented.

v) India being forced out of Iron Ore competition ?

The above factors are contributing to significant reduction in export share. Australia has competitive advantage over India and has steadily increased its exports to Japan, S. Korea and China.

Cut throat competition has come from Dollar starved CIS Countries like Russia and Ukraine, which have started exporting Iron Ore at extremely low prices.

Finally, economic recession and slow down are seriously affecting steel Industries viz-a-viz iron ore mining companies.

vi) 'Fishy' Role of Pollution Control Board

On receipt of the news about damage to the slurry pipe, which resulted in spillage of 4,000 tones of Iron Ore concentrate, into the surrounding fields and Kannalu stream and Yennehole River, the TAC of the board visited Noorai Betta and Khadri village on 30.7.2000 and reported as follows :

The investigation team had demanded the Pollution Control Board on 3.7.2000 for a copy of the TAC Report and the Member Secretary of Pollution Control Board has sent the following note on 21.10.2000 - About 100 kms pipeline was laid from Malleswara to Mangalore to carry Iron Ore slurry and it is parallel to Kanyalu stream. The Kanyalu stream finally joins to river Yennehole. The pipeline laid area comes under reserved forest. The TAC subcommittee observed that, the Iron Ore deposits on the banks of the stream and river bed. Since the density of slurry is more than water and as slurry is not water soluble, the slurry has deposited at various places in the river course. There is no possibility of affecting water quality. The subcommittee has observed that there is no fish mortality. Existence of fish life in the riverine system is observed.

The water quality analysis report of the Board indicates that there is no adverse impact on river water quality due to the mishap. The subcommittee also observed that, the problem is limited to aesthetic pollution and may not cause adverse effect on river water quality.

To counter this complacement statement of the Pollution Control Board we reproduce the following text from the Indian Institute of Science, 'Rapid Assessment Report'

Page 27 para 4 - IISc., CES Report)

The iron ore slurry pipeline passing through the western slopes is mostly underground. But this has also opened up many road approaches through the evergreen forests for the maintenance of the pipeline at different locations. Recently there were several

incidents of leakages in the iron-ore slurry pipeline. The spread of iron ore slurry leakage is estimated to be at least 100 ha along the slopes of the forest and the rivulets down stream. The pipeline has leaked 5 times within a span of 3 years; around 4000 tonnes was leaked into the forest during each leakage. Repairing and laying of a new pipeline to by pass the damaged pipes obviously causes some damage to the forests of Kudremukh National Park.

Page 20 para 3,4,5 and 6 (IISc. - CES Report)

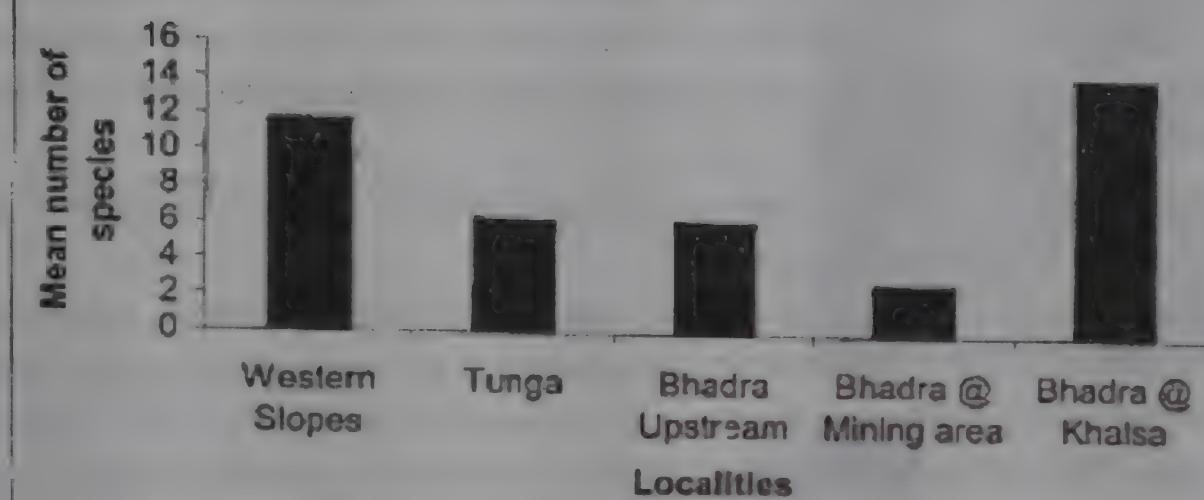
Although the mining area (Kudremukh, Bhadra Nellibeedu) is ideal for the torrential fish species like the loaches and sucker catfish, their absence is obvious (Table 3.6.1). This could be attributed to the disturbances to the habitat. These fishes prefer substrates such as boulders, bedrocks and cobbles with fast to moderate flow rate. The food items of these fishes consists of filamentous algae adhered to the above mentioned substrates. The sediments from the mining operations plugs the crevices between the pebbles, cobbles and boulders, suppressing the algal growth. This reduces the availability food resources for loaches and sucker catfishes. The species encountered in the Kudremukh mine area are Nash's barb (*Osteochilichthys nashii*), Boopis razor belly (*Salmostoma boopis*), Jerdon's carp (*Puntius jerdoni*) and *Pseudaambassis ranga*. These species are known to tolerate turbidity and even high amount of dissolved solids in the water (Easa & Basha 1995).

From the Bhadra river (near the mining area) only two species were encountered, Giant danio (*Danio aequipinnatus*) and Mullya garra (*Garra mULLya*). These two species were collected far ahead of the confluent zone of the effluent channel from the factory with the river. A high biological turbidity coupled with the slow rate of flow could be the reason for low diversity in the site. The presence of Garra here inclines is indicative of this river possibly having been inhabited by similar forms such as Ballitorine loaches, and sucker catfishes. The current disturbance in the habitat might have caused local disappearance of these pollution-sensitive species.

In Lakhya Hole, four species were recorded (*Puntius fasciatus*, *Barilius bendelisis*, *Nemachilichthys ruepelli* and *Nemachilus anguilla*). At this site, an isolated pool with clear water is inhabited by the 4 fish species but the adjacent area with turbid water and accumulated sand is absolutely without any fish species.

At Kachighole, a valley slated for another dam to retain mining wastes, it is noteworthy that the torrential habitat supports Deccan mahseer (*Tor khudree*), regarded as a highly endangered species (CAMP 1998).

Fig 3.6.1 Mean number of fish species at different sampling localities



Graph reproduced from CES Report

Finally, we have reproduced pic 11, showing the Yennehole stream inside Kudremukh National Park, filled with Iron Ore slurry during the leakage of pipeline in July 2000, which clearly shows thick black knee deep concrete like slurry in the river.

It is impossible for any fish to survive under such utterly disgusting and obnoxious conditions. Yet the Karnataka Pollution Control Board was too pleased to confer the super par-executive certificate to the KIOCL.

CONCLUSION

We would like to put on record that open cast mining by KIOCL is inevitably damaging the ecology of the Kudremukh National Park and conclude as follows from our investigations :

- 1) KIOCL has been an irresponsible company and has damaged the environment of Kudremukh National Park. It is guilty of having violated several laws of the land which includes The Forest (Conservation) Act 1980, The Wildlife (Protection) Act 1972, The Environment (Protection) Act 1986, The Water (Prevention and Control of Pollution) Act 1978, The Explosives Act, 1872, The Karnataka Irrigation Act 1964. This has been possible because of the negligence and in some instances active connivance of the monitoring and the enforcement agencies, both at the Central and as well as the State level. Who have permitted KIOCL to continue their polluting activities despite the blatant violations of laws.
- 2) The Kudremukh National Park was notified because of its intrinsic biodiversity value as evidenced by various studies over the years.
- 3) NEERI's CEIA is also an irresponsible document because it has tried to cover up and suppress many of the past and present misdemeanors of the company. As a national Institute NEERI has failed to put on record the numerous negative impacts caused due to mining in the Kudremukh National Park. The commercial interests of NEERI in attempting to attract more clients for its services has probably restrained it from giving a far more truthful version of the actual happenings in Kudremukh National Park.

Hence, we would like to reiterate that the Ministry of Environment and Forests, Government of India and Department of Forest, Ecology and Environment, Government of Karnataka should not permit the continuation of mining in the National Park purely on commercial interests. They should also take into consideration the larger ecological consequences and also calculate the environmental burdens which the country will have to bear, which far outweighs the commercial benefits accruing only to the company.

Lastly, we would like to emphasize the point that mining cannot be permitted in a National Park and that the State Government or the Central Government should not bow to pressure from any quarter and delete the area leased to the company from the National Park. Such an act would be improper and injudicious and would defeat the very spirit and purpose behind framing the environmental laws. As we are preparing the conclusion we were intimated, that a pocket has been created within the Kudremukh National Park by deletion of the mining lease area and the illegally submerged shola forest area by the Lakhya dam in the final notification of 16.06.2001 (Annexure 16). This has been done even after the Supreme Court interim order dated 13.12.2000 in WP 337/95 "WWF Vs. Union of India" pending further orders no de-reservation of forests, Sanctuaries, National Parks, shall be affected. Hence, can we construe the final notification of the Kudremukh National Park deleting the mining area, as one being in contempt of the Supreme Court directive ?

Pic 1: Wet Evergreen Forests of Kudremukh National Park



Pic 2: High Elevation Grassland and Shola Forests of Kudremukh National Park



Pic 3: View of the Mining Area as Compared to the Natural Habitat of Shola Forests and Grasslands in the Background



Pic 4 : Forests of Gangdikal (Kudremukh National Park), the Proposed Area of Mining



Pic 5: View of the Mining Around Shola Forests.



Pic 6 : Formation of Roads for Prospecting Operations of Nellibeedu Deposits inside Kudremukh National Park



Pic 7: 100 Meter High Lakya Dam Almost Filled to its Capacity with Iron Ore Waste Tailing



Pic 8: Additional 3.4 Sq. Km. of Shola Forest Valley Submerged by Lakya Dam in the National Park (outside the Mining Lease Area) due to the increase in the height of the dam to 100 mts.



Pic 9: Confluence of a Clear Stream from Natural Grasslands with River Bhadra Carrying Heavy Silt Load. Downstream of Mining Area in the Monsoon. -

Photo : EIA, Aug 1996.



Pic 10 : Iron Ore Deposits on the Banks of River Bhadra at Balehonnur, 15 Kms. downstream of Kudremukh Mining Area -

Photo : EIA, Aug. 1996



Pic 11: Yennehole Stream inside Kudremukh National Park, filled with Iron Ore Slurry during a Leakage of the Pipeline in July, 2000



Pic 12: Repairs and Laying of a New Pipeline through the Kudremukh National Park (Outside the Lease Area)

NAGARIKA SEVA TRUST

(Environment Support Group Project)

'Grace Villa', No 514, 5th Cross, 7th Main, HMT Layout, RT Nagar, Bangalore – 560 032.
Phone & Fax: 080- 3535532, Email: nst@vsnl.com

(UCP)

Ref.: 170/MP/ 275

14/Mar/2001

The Principal Chief Conservator
of Forests (Wildlife) and
Chief Wild life Warden
Karnataka Forest Department
Aranya Bhavan, Malleshwaram
Bangalore – 560 003.

Dear Sir,

Sub: Regarding providing us with a copy of the permission letter to Kudremukh Iron Ore Company Ltd. (KIOCL).

Ref. 1) Our letter No. 170(II) /MP/189 dated 23/12/2000 to you.
2) Our letter No. 170(II)/RR/200 dated 1/1/2000 to you.
3) Our letter No 170(II) to Secretary to Government of Karnataka (Forests) dated 23/12/2000
4) Our Email to the Chief Minister dated 5/01/01
5) Our Email to the Chief Minister dated 23/01/01
6) Our letter to you No 170/MP/215 dated 24/01/01
7) Our Letter to the Chief Minister dated 13/02/01.

We thank you very much for your letter number DMN. WL.CR – 100 /99 – 2000 dated 13/03/2001 together with the enclosures, which was hand delivered to us on the 13th March 2001. We very much appreciate your making the copies available to us, even without written instructions from the government to this effect.

You in your letter have raised a few points, which in our view requires some response in order to keep the record straight. They are as follows:

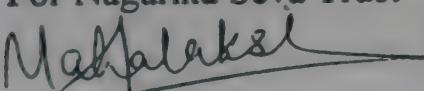
- 1) We have not sent the letter in haste to the Chief Minister. It is only after exhausting all channels of getting information which includes the office of the Chief Wildlife Warden and the Secretary to Government of Karnataka (Forests). As we were left with no alternative we had to approach the Chief Executive of the State, the Hon'ble Chief Minister. For your kind information it was a letter sent by email and hence does not bear my signature. We have also written another letter to the Chief Minister as a follow up to the email by registered post dated 13/02/01 and it does bear my signature.

- 2) Your letter mentions that we have not followed the requisite procedure for obtaining information from the government. The procedure we have followed is that we first approached your office for information. As we failed to get any response from your office we approached the Secretary to the Government (Forests). However as we failed to receive a reply from either of the offices we then were left with no option but to approach the Chief Executive of the State, who directed us to the Principal Secretary Department of Forests Ecology and Environment, for the required information which we did. This in our view is a correct step by a citizen to be followed for obtaining information. However we would be much obliged if you could enlighten us on the correct procedure that needs to be followed for obtaining government records for future use. This would help us in the future.
- 3) We would also like to place on record that the Principal Secretary did inform us that he had discussed the matter with you and that you had agreed to make a copy available to us. If you would recall we again wrote to you requesting for a copy of the letter quoting our conversation with the Principal Secretary. (Ref: 6). Whether you needed a written communication or not is an internal matter to be sorted out between your office and the office of the Principal Secretary.

However we do appreciate, you making us a copy available inspite of no written orders from the Principal Secretary.

Thanking you,

With Regards

Yours sincerely
For Nagarika Seva Trust

Mahalakshmi Parthasarathy

cc: The Principal Secretary, Department of Forest Ecology and Environment,
Government of Karnataka.

NAGARIKA SEVA TRUST

(Environment Support Group Project)

'Grace Villa', No 514, 5th Cross, 7th Main, HMT Layout, RT Nagar, Bangalore - 560 032.

Phone & Fax: 080- 3535532, 3535679, Email: nst@vsnl.com

(Reg. AD)

13/02/01

Shri S. M Krishna,
The Chief Minister,
Government of Karnataka,
Vidhana Soudha,
Bangalore-560001.

Dear Shri Krishna

Sub: Regarding letter of permission given to Kudremukh Iron Ore Company Ltd. to fell trees within the Kudremukh National Park to relay the iron ore slurry pipeline.

Ref: 1) Our email to you dated 5/01/01.
 2) Your email dated 5/01/01.
 3) Our follow up email dated 23/01/01 to you. (Copy enclosed)

We had emailed to you on 5th of January 2001(Ref: 1 above), requesting you to direct the concerned officials to make available the copy of the permission letter given by the Chief Wildlife Warden to Kudremukh Iron Ore Company Ltd. (KIOCL) to fell trees to relay their iron ore slurry pipeline in the Kudremukh National Park.

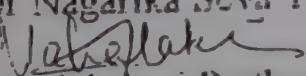
You had kindly replied back to us the same day (Ref: 2 above) intimating us that our letter had been forwarded to the concerned department to take appropriate action. We in turn contacted the Department of Forests Ecology and Environment, but we are sorry to say, as of now we have not got the copy of the permission letter, nor have we received a reply stating that the said document cannot be release to the public.

We are sorry to say that albeit your publicly stated commitment to right to information, this commitment is not reflected in the functioning of the officials of your government.

We are again requesting you to kindly intervene in the matter and direct the concerned officials to provide us with a copy of the letter of permission. If the said letter cannot be given we would appreciate an endorsement to the effect.

We shall look forward to hearing from you at the earliest.

Thanking you,

Yours sincerely
 For Nagarika Seva Trust

 Mahalakshmi Parthasarathy

NAGARIKA SEVA TRUST

(Environment Support Group Project)

'Grace Villa', No 514, 5th Cross, 7th Main, HMT Layout, RT Nagar, Bangalore - 560 032.
Phone & Fax: 080- 3535532, Email: nst@vsnl.com

23/01/01

By Email
Shri S. M Krishna
The Chief Minister
Karnataka State

Dear Shri Krishna

We had written to you on 5th Jan 2001 regarding directing the Department of Forests Ecology and Environment, to provide us with a copy of the letter giving permission to Kudremukh Iron Ore Company Ltd. to fell trees within the Kudremukh National Park, to relay their iron ore slurry pipeline.

In this regard you had emailed back to us the same day stating that you had forwarded the letter to the concerned department to take appropriate action.

We had already sent a letter of request to Shri Chelawadi, the Secretary to Government (Forests), DFEE and Shri S. K Chakrabarti, the PCCF (Wildlife) on 1st January 2001 to make available a copy of the said letter. We had spoken to Shri Chelawadi who said that he couldn't make the copy available, as his office did not have a copy of it. Shri Chelawadi asked us to contact Shri Chakrabarti in this regard. When we contacted Shri Chakrabarti he refused to make available a copy of the said permission to us.

After your emailed letter to us we contacted Shri Gokulram, the Principal Secretary, to provide us with a copy, he said that he had already received instructions from the CM's office and had spoken to Shri Chakrabarti to provide us with a copy. As of date we have not received a copy from the PCCF (Wildlife) office.

Are we to believe that Shri Chakrabarti does not intend to provide us with a copy of the said letter, inspite of the directions given by the Chief Minister of the State? Or are we to understand that your government is also not interested to enforce the right of a citizen to such information?

If we are to believe in the Chief Executive's publicly stated commitment to right to information, we look forward to your giving directions to the PCCF (Wildlife) Shri S.K Chakrabarti to provide us with a copy of the said letter at the earliest.

Thanking you in anticipation

Yours Sincerely
For Nagarika Seva Trust

JdM
Mahalakshmi Parthasarathy

No. DMN / WL / CR - 100 / 1999 - 2000

Office of the
 Principal Chief Conservator of Forests,
 (Wildlife), Bangalore
 Dated : 06 - 12 - 2000

OFFICIAL MEMORANDUM

Sub : Repair to Slurry pipeline running through Kudremukh National Park

Ref : 1. This office letter No. DMN / WL / CR - 100 / 99 - 2000 dated : 28 - 7 - 2000, 11 - 10 - 2000, 08 - 11 - 2000.
 2. Government of India letter No. 8 - 69 / 99 - FC dated : 25 - 07 - 2000, 21 - 09 - 2000, 1 - 11 - 2000.
 3. Government of Karnataka letter No. FEE 41 FFM 98 dated : 05 - 12 - 2000.

Preamble :

The Principal Chief Conservator of Forests, (Wildlife) & Chief Wildlife Warden, Bangalore in his letter cited above have made a detailed report on slurry pipeline running through Kudremukh National Park and requested the State Government to authorise the Principal Chief Conservator of Forests, (Wildlife) & Chief Wildlife Warden to issue permission under Section 29 of Wildlife Protection Act (1972) to cause the minimum necessary disturbance connected with the replacement of present slurry pipeline if necessary after due consultations with the law department.

The Principal Chief Conservator of Forests, (Wildlife) & Chief Wildlife Warden, Bangalore again appraised the Government on the subject matter and requested the Government to accord necessary permission to remove the tree growth existing on the Pipeline and for the movement of machineries / equipment to repair the damaged slurry pipeline running within the Kudremukh National Park without insisting upon the Supreme Court Order in Writ Petition No. 202 - 95 (Civil) as this operation is in the interest of safe guarding the flora and fauna of the region and there is no revenue motive in this operation.

The Principal Chief Conservator of Forests, (Wildlife) & Chief Wildlife Warden, Bangalore addressed a letter to the Additional Chief Secretary and Principal Secretary duly sending the marking list of the tree growth existing on the alignment of the pipeline within the Kudremukh National Park and requested the Government to authorise the Chief Wildlife Warden to permit

burning within the Kudremukh National Park under the provision of Section 29 of Wildlife Protection Act (1972) to prevent further environmental hazards in the area in question.

Now the Government of Karnataka in their letter cited under reference (3) has authorised the Principal Chief Conservator of Forests, (Wildlife) & Chief Wildlife Warden, Bangalore to take action under Section 33 of the Wildlife Protection Act (1972) keeping in view the observations made by the Government of India in their letter mentioned above

Hence the following orders.

Order

As authorised by the Government of Karnataka to the undersigned and in provision to the Section 33 of the Wildlife Protection Act (1972) amended 1993 permission is hereby granted to fell the tree growth existing on the slurry pipeline running within the Kudremukh National Park as per the list of tree growth submitted by the Deputy Conservator of Forests, Wildlife Division Karakal bearing No. 1 - 272 i.e., *Acacia auriculiformis* 75 Nos., *Eucaluptus* 175 Nos., Jungle Wood 22 Nos., subject to the conditions imposed by the Ministry of Environment and Forests, Government of India in their letter No. 8 - 69 / 99 - FC dated : 24 - 07 - 2000, 21 - 9 - 2000 and 1 - 11 - 2000.

S. V. Chakrabarti
Principal Chief Conservator of Forests,
(Wildlife), Bangalore.

Copy to the Conservator of Forests, Wildlife North Circle, for information and further action.

Copy to the Deputy Conservator of Forests, Wildlife Division, Karkala for information and further action. The felled materials should be allowed to be either used for departmental purpose or distributed free as eco-developmental activities and not disposed off for any kind of commercial returns.

Copy with compliments to the Principal Secretary, Forests, Environment and Ecology Department, Government of Karnataka, Bangalore for information.

Copy with compliments to the Assistant Inspector General of Forests, Ministry of Environment and Forests, Government of India, New Delhi for information.

Copy with compliments to the Principal Chief Conservator of Forests,
Bangalore for information.

Office of the
Principal Chief Conservator of Forests,
(Wildlife), Bangalore
Dated : 07 - 12 - 2000

CORRIGENDUM

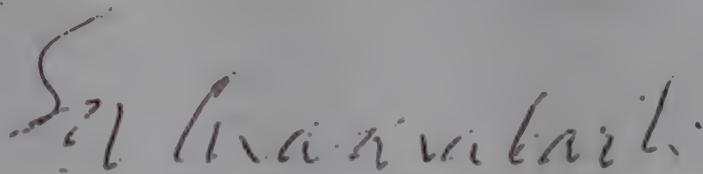
Sub: Repair to Slurry pipeline running through Kudremukh National Park

Ref: 1. This office letter No. DMN / WL / CR - 100 / 99 - 2000 dated : 28 - 7 - 2000, 11 - 10 - 2000, 08 - 11 - 2000.
2. This office OM No. DMN / WL / CR - 100 / 99 - 2000 dated : 06 - 12 - 2000.
3. Government of India letter No. 8 - 69 / 99 - FC dated : 25 - 07 - 2000, 21 - 09 - 2000, 1 - 11 - 2000.
4. Government of Karnataka letter No. FEE 41 FFM 98 dated : 05 - 12 - 2000.

In the order portion of the Official Memorandum No. DMN / WL / CR - 100 / 99 - 2000 dated : 06 - 12 - 2000 the number of trees may please be read as 781 (Seven Hundred and Eighty One Only) instead of 272 numbers. The other particulars in the order portion remain unchanged.

272 - On existing pipeline within the mine leased area within Kudremukh National Park.

509 - On the existing pipeline outside the lease area but within the Kudremukh National Park.


Principal Chief Conservator of Forests,
(Wildlife), Bangalore.

Copy to the Conservator of Forests, Wildlife North Circle, for information and further action.

Copy to the Deputy Conservator of Forests, Wildlife Division, Karkala for information and further action. The felling of trees as identified and marked by you should be taken out Departmentally. The felled materials should be

allowed to be either used for departmental purpose or distributed free as eee developmental activities and not disposed off for any kind of commercial returns. Further the Deputy Conservator of Forests should send a proposal for the company to compensate for the felled trees in line with the Forest Conservation Act, 1980. The Company should also meet the expenditure so incurred on both the Operations. An MOU may be executed in this regard with the Company.

Copy to the Chairman cum Managing Director, M/s., Kudremukh Iron Ore Company Limited, Bangalore for information.

Copy with compliments to the Principal Secretary, Forests, Environment and Ecology Department, Government of Karnataka, Bangalore for information.

Copy with compliments to the Assistant Inspector General of Forests, Ministry of Environment and Forests, Government of India, New Delhi for information.

Copy with compliments to the Principal Chief Conservator of Forests,
Bangalore for information.

(Jin) ୬/୧୨
କମଲାନ୍ଦୁ ପାତ୍ରଗନ୍ଧ

ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ
KARNATAKA STATE POLLUTION CONTROL BOARD

6, 7, 8 ಮತ್ತು 9ನೇ ಲಂತನ್ (ಜನ್ಮಾಯೋಗಿ ಕಟ್ಟಡ)
ಸುಭಾಸ್ ಚಂದ್ರ ಬೋ ಕಟ್ಟಡ
ಮಹಾತ್ಮ ಗಾಂಧಿ ರಸ್, ಬೆಂಗಳೂರು - 560 001.
ಕರ್ನಾಟಕ, ಭಾರತ.

6, 7, 8 & 9th Floor, (Public Utility Building)
Subhas Chandra Bose Building
M. G. Road, Bangalore-560 001
Karnataka, INDIA

NO. KSPCB/CKM/DEO (TC)/AEO-2/2000-2001/3354.

DATED: 21 OCT 2000

To
M/s. Nagarika Seva Trust,
Environment Support Group Project,
Grace Villa No.514, 5th Cross,
7th Main, H.M.T. Layout R.T.Nagar,
BANGALORE-560 032.

Sir,

Sub: Spillage of Iron Ore Slurry from pipeline of
KIOCL in Kudremukh Park - reg.

Ref: 1. Your letter No. 170111/RR/082 dated 4.8.2000.
2. Inspection of Sub-committee of Technical
Advisory Committee of the Board visited
Nooral betta and Khadri Village of Karkala
Taluk on 30.7.2000.

With reference to the above, it is to be informed that on 17.7.2000 at 13.5 KM from Malleswaram the pipeline had given away resulting in leakage of Iron Ore slurry and flooding in near by fields. The Boards Technical Advisory Committee's Sub-Committee visited the site. The Kadri Village and Nooralbetta Village of Karkala ~~From~~ on 30.7.2000 and reported as follows.

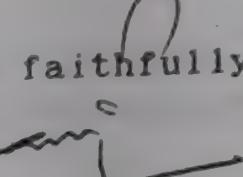
About 100 Kms pipeline was laid from Malleshwara to Mangalore to carry Iron ore slurry and it is parallel to Kanyalu stream, the Kanyalu stream finally joins to river Yennehole. The pipeline laid area comes under reserved forest. The sub Committee observed that, the Iron Ore deposits on the banks of the stream and river bed. Since the density of slurry is more than water and as slurry is not water soluble, the slurry has deposited at various places in the river course. There is no possibility of affecting water quality. The sub committee has observed that there was no fish mortality. Existence of fish life in the riverine system is observed.

The water quality analysis report of the Board indicates that there is no adverse impact on river water quality due to the mishap. The sub committee also observed that, the problem is limited to aesthetic pollution and may not cause adverse effect on river water quality.

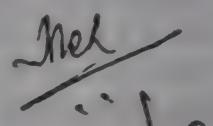
During the visit of the sub-committee the local people and residents of Nooralbetta village (near to the episodal point) informed that, there is no damage caused to the crops in the area.

However, the Member Secretary, Karnataka State Pollution Control Board instructed the factory authority to remove the Iron Ore deposits from the river bank immediately and submit compliance. This is for your kind information.

Yours faithfully,


MEMBER SECRETARY.

ay


18/10

ANNEXURE-6

RE: ~~WILDLIFE~~

CHARISH N. SALVE

SUBJ: ~~WILDLIFE~~
SOLICITOR GENERAL OF INDIA

18th July, 2000

Dear Shri Sharma,

This has a reference to your letter of 1st July, 2000 relating to the grant of permission to mining activity in National Parks & Sanctuaries.

Section 29 of the Wildlife Protection Act prohibits absolutely, the grant of any permission "by the State Govt." or the Chief Wildlife Warden, for any activity which damages the habitat of any wild animal within such sanctuary unless such activity is necessary for the better management of wildlife itself.

A similar prohibition in relation to National Parks is provided for under Section 35(6). Section 38 imposes the same restrictions on the powers of Central Govt. where it declares areas of the National Parks & Sanctuaries.

The context of granting renewal to lease in National Parks & Sanctuaries has to be viewed in this backdrop. In my event, for the present, the Supreme Court has imposed an absolute embargo on the removal of even dead and wind-fallen trees etc. from National Parks & Sanctuaries by its order dated 14.02.2000.

I would suggest that wherever a permission is sought, you may ask the applicant to first seek clearance of the Supreme Court. If the Supreme Court directs the grant of any such permission or even clears the grant of any such permission, then the matter can be considered. This may be the course of prudence to be adopted in this matter.

As regards, the Nagarjunasagar Tail Pond Dam, kindly send me all the papers and we could then have a discussion and a final view taken.

With best wishes,

Yours sincerely,

(CHARISH N. SALVE)

Sh. S.C. Sharma
Addl. IGF (Wildlife)
Min. of Environment & Forests.

No.C3/CR/30/KNP/99-2000

Office of the
 Deputy Conservator of Forests,
 Kudremukh Wildlife Division,
 Karkala, dated:30-06-2000.

To:

The Deputy Commissioner &
 Settlement Officer,
CHIKMAGALUR,
MANGALORE AND UDUPI.

Sir,

Sub: Filing of Objections regarding
 Kudremukh National Park and Set-
 tlement of rights - reg.

The Preliminary Notification for Kudremukh National Park was issued by the Government as per Order No. AHFF.42.FWL.87 in 1987. As per this notification, five Reserve Forests i.e. (i) Andar Reserve Forest, (ii) Naravi Reserve Forest, (iii) Narasimhaparvatha Reserve Forest, (iv) Tungabhadra Reserve Forest and (v) South Bhadra Reserve Forest have been notified as the area constituting Kudremukh National Park.

The process of settlement of rights is in progress and it seems few parties have filed objections to the proposal. Though the copies of their objections have not been made available to me, the following facts are being brought to your kind notice in order to facilitate decisions on the objections raised by them. This letter may kindly be treated as the opinion of the Forest Department on this matter. The same opinion has also been communicated to the Government by Principal Chief Conservator of Forests (Wildlife), Bangalore as per letter No. D.WL.CR/74/99-2000, dated 22/24-05-2000.

(1) These five reserve forests were notified in following years

(i) Andar Reserve Forest

15-01-1891

(ii) Naravi Reserve Forest	-	01-06-1900
(iii) Narasimhaparvatha Reserve Forest	-	01-03-1916
(iv) Tungabhadra Reserve Forest	-	7-7-1916 & 29-8-1914
(v) South Bhadra Reserve Forest	-	29-08-1914

The legal land holding at the time of notification of reserve forest were treated as enclosures. They were not notified as the Reserve Forest lands and consequently the 1987 National Park notification, which notified the Reserve Forest land does not include these lands. Though these enclosures will be located within the over all area of National Park, they will not be a part of the land notified for the purpose of the National Park.

This automatically leads to the conclusion that the legal land owners staying within the enclosures need not be displaced or rehabilitated. As a consequence there is no social and financial implication in this regard. Right of way have been provided in the reserve forest notification and will continue to exist accordingly. Other rights and privileges like grazing and leaf collection, etc., which lie with Reserve Forest land will have to be settled as no rights or privileges can be provided within the National Park land boundary. In view of this fact, the legal land holding may be left as such and the remaining land within the enclosures may be declared as National Park.

(2) The encroachments are not permitted within any reserve forest as per Forest Conservation Act, 1980 and Karnataka Forest Act, 1963. Hence they will have to be removed from this area like from any other reserve forest irrespective of the area being declared as a National Park or not. The people who have encroached the land have no legal right. In addition they do not gain anything by the status of this area being left as a reserve forest or enhanced to that of a National Park. Hence their objections to the area being de-

clared as a National Park are meaningless and should be overruled.

(3) On 27-12-1999 the Revenue Secretary has held discussion on the issue of rehabilitation/settlement of people and the financial implications thereof. The preliminary report submitted by the Deputy Commissioner, Chikmagalur includes around 2000 employees of Kudremukh Iron Ore Company among those who have to be resettled/compensated/rehabilitated. This is a misleading projection as these employees are the responsibility of the Kudremukh Iron Ore Company Limited. They are not land holders and stay well within the enclosure where Kudremukh Iron Ore Company Limited has developed a township. The Company can always relocate them based on their requirement.

(4) The five Reserve Forests which constitute the 'National Park' are 'Evergreen Tropical Forests' and 'Shola forests'. They are located in a highly fragile terrain and form an eco system which is probably one of the richest in bio diversity. It has been notified as one of the 14 'Hot Spots' notified in the World for bio diversity, in 'Bio diversity Convention in Geneva to which Indian Government is a signatory. The rich variety in flora and fauna is almost unique and can only find some comparison to the forests of North Eastern States. Some species are endemic to this area which could survive as these areas were highly inaccessible and are likely to disappear with increasing biotic interference. They are a part of the national heritage. Besides flora and fauna, this area is the place of origin of three important rivers called Tunga, Bhadra and Netravati. These facts call for extensive management to conserve the existing ecology and natural wealth. The management has to be from the point of view of a habitat conservation so that these rare species continue to survive and multiply. A mere look at this area is enough to substantiate these facts. Inspite of these distinctions, if this area does not qualify to be fit to be declared as a 'National Park', then no other area in Karnataka is fit for this distinc-

(5) The management practices have to stress on conservation and protection especially from fire. This type of management is possible only when the area is notified as a National Park. This type of management has already started yielding results in form of a healthy forest and increased Wildlife. In case these areas are taken out of 'Protected Area' network, the extraction and other practices will be taken up leading to a change in composition of the forest itself. In case these areas are degraded or lost, it would be impossible to regenerate them no matter whatever be the level of investment.

(6) At times some people are mistaken by the grassland on hilltops and presume that since there are no trees these areas are not fit to be called forests. It would be worth mentioning here that these grasslands are an essential feature of 'Shola Forests' in which they form the climatic climax of Shola forests and cover the hill tops while tall miscellaneous tree species cover the lower reaches and the valleys. These grasses stabilise the thin soil cover and withstand the cold and wind. They provide food for herbivores which in turn provide food for carnivores thus forming the food chain. This area has around 2000 herbivores which survive on these grasslands.

Exposure of these areas removes the soil cover and disturbs the site. The already existing mining site is a proof of this as not even a blade of grass grows in the mined area where the top soil has been disturbed.

(7) The mining activity was very much in existence in this area in 1987 and so were the provisions in Wildlife Protection Act, 1972 and Forest Conservation Act, 1980 which prohibit mining in Reserve Forest and National Park, when the government declared

the area as a National Park. Keeping in view the uniqueness of the terrain, its flora and fauna, its fragile ecology, the government decided to issue the Notification. These reasons are very much valid even now rather they have gained much more importance due to the overall environmental degradation, disappearing biodiversity and increasing global environmental concerns. Downgrading the status now to facilitate mining or to delete areas or denotify areas for this purpose will be contrary to the policies as well as the objectives of environment conservation.

(8) Coming to the issue of mining by Kudremukh Iron Ore Company Limited, the township lies within an enclosure and the actual mining site is within South Bhadra Reserve Forest. The technique of mining is open cast mining using heavy machines. The loss of soil cover is too evident from a mere look at the mined area as well as from the colour of the water of Bhadra river before and after it passes through the mining site. Though technical studies have been initiated to assess the actual extent of soil loss but the facts are too visible to be understated. The use of heavy machinery will lead to soil compaction which can not allow regeneration of the area in any manner.

(9) The Lakya dam which was built to collect tailings and also to avoid pollution of Bhadra river had already been filled to capacity in 1984 when the company violated the Forest Conservation Act to raise the height of the dam. This action leads to further submergence of 340 Ha. of good forest area outside the area leased to the Company. In its present situation, this dam may be useful for 5-6 years only when it will be full to its capacity. Further mining would require further increase in the height of Lakya Dam or construction of another dam and further submergence of the forest area outside the mining site.

(10) The transportation of ore requires repairs of pipeline for which the proposal of diversion of 30 Ha. - 37 Ha. of prime Bhagavathi

forest area which lies outside the lease area has already been submitted. This area is a virgin forest and a natural breeding center for the Wildlife. If accepted this proposal would require cutting of 700 trees of different species. Though contrary to all policies and Supreme Court orders, it would have to be essentially granted if mining is to be permitted.

(11) In case new sites like Gangrikal and Nellibedu are to be considered for mining, then these areas will be defaced further along with constructing new dams and transportation facilities. This would mean four fold destruction and degradation of the environment. The Kudremukh Iron Ore Company Limited authorities insist that this area does not have trees hence would mean no destruction to forests. However, the clarification in point number (6) stated here is very relevant for these two sites.

(12) Point 7 to 10 clearly indicate that even if mining is permitted within the existing lease area, its effects of destruction on forest areas and pollution of the environment are seen all around in far flung area. The soil losses are many fold as this area is a high rain fall area. As stated earlier, the reclamation of this soil or biodiversity will not be humanly possible.

(13) The detailed consequences and environmental impact can only be ascertained after the studies have been completed. However providing or not providing mining in a Reserve Forest is to be decided by the Ministry of Environment and Forests. The rules in this regard are equally stringent in case of a Reserve Forest. Hence declaration as a National Park does not change the situation for mining companies.

(14) The Range Forest Officers and Assistant Conservator of Forests of the area have already filed objections on the forms provided

by the revenue departments in case of objections filed individually.

In view of the above stated facts, it is very clear that there is no major financial implication or social implication in declaring this area as a National Park. On one side where it hardly creates a problem for the legal settlers it is essential from the point of view of conservation of bio diversity and National Heritage. It is also in accordance with the National Forest Policy which requires 4% of total land to be declared as Protected Area.

The objections filed may kindly be examined in the light of the points raised above and settled accordingly. The issue of final notification is overdue now and due to the directions of Supreme Court, it cannot be delayed any further. Hence the final report may kindly be expedited.

Yours faithfully,

Sd/-

Deputy Conservator of Forests,
Kudremukh Wildlife Division,
KARKALA.

Copy : (1) Submitted to the Principal Chief Conservator of Forests (Wildlife), Bangalore for kind information.

(2) Submitted to the Conservator of Forests, Wildlife North Circle, Shimoga for kind information.

(3) Submitted to the Conservator of Forests, Forest Conservation, Bangalore for kind information.

(4) With compliments to Assistant Commissioner, Chikmagalur, Puttur & Kundapur for necessary action.

(5) DCC, UU Sub Division. Madhav Ghatge

Kudremukh, 7th June 2010. Deputy Conservator of Forests,
Kudremukh Wildlife Division,
KARKALA.

S. K. CHAKRABARTI, I.F.S.

Principal Chief Conservator of Forests (Wildlife)
&
Chief Wildlife Warden



ANNEXURE B

Off. : 080-3345846
080-3341993
Tele Fax : 080-3346389
Res. : 080-3445431
080-3344839

E-Mail-ccfcwifb@bgl.vsnl.net.in

"ARANYA BHAVAN"
2nd Floor, 18th Cross,
Malleswaram, Bangalore-560 003.

03 – 09 – 1999

Date : 6.

Ref: DMN / WL / CR – 74 / 1999 – 2000

To
The Research Associate,
Nagarika Seva Trust,
No. 44, New Bamboo Bazar Road,
Cantonment,
Bangalore – 560 051.

Madam,

Sub : Regarding temporary working permit for mining to M/s., Kudremukh Iron Ore Company Ltd.,

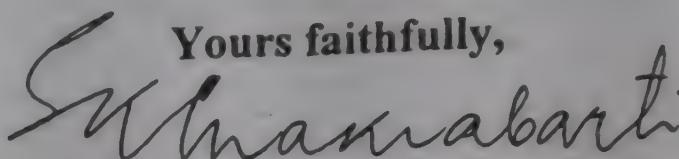
Ref : Your letter dated : 11 – 08 – 1999.

Section 35 (6) of the Wildlife Protection Act, 1972 relates to actions consequent upon the Final Notification of a National Park declared under Section 35 (4) of the said Act. For Kudremukh National Park the Government have issued Notification so far only as per provisions contained in Section 35 (1) of the said Act stating its intention to constitute it as a National Park.

The Revenue Authorities have issued the proclamation under Section 21 of the said Act and their report is awaited for the issue of the Final Notification of Kudremukh National Park. Thus action under Section 35 (6) does not arise at this stage.

The Ministry of Environment and Forests, Government of India, New Delhi has granted temporary working permission over already broken up forest areas for a period of one year or till the issue of the Final Notification of Kudremukh National Park, whichever is earlier subject to other conditions.

This is for your information.

Yours faithfully,

S. Bhanaabathi 31/9/99
Principal Chief Conservator of Forests
(Wildlife), Bangalore.

NAGARIKA SEVA TRUST

(Environment Support Group Project)

III floor, No 44, New Bamboo Bazar Road, Cantonment, Bangalore – 560 051.
 Ph: 080-5514335, 5548432. Fax: 5548432.
 Email: nst@vsnl.com

30/Aug/99'

The Chief Wild Life Warden and PCCF (Wild Life),
 Aranya Bhavan, 18th Cross,
 Malleshwaram,
 Bangalore – 560 003.

Dear Sir,

Sub: Requesting a reply to letters seeking information
 regarding clearance given under Sec 35 (6) of the Wild Life
 (Protection) Act of 1972, to KIOCL.

Ref: 1) Our Letter dated 31st July 1999.
 2) Our Reminder dated 11th August 1999'

We have written to you, refer to our letters mentioned above (Copies enclosed) and have subsequently made several calls to your office to ascertain whether you have given permission under Sec 35 (6) of the Wild Life (Protection) Act 1972 to KIOCL to mine in Kudremukh National Park from 25th of July 1999. As of now we have not received a reply.

Please intimate to us within 7 days whether you have given the said permission under Sec 35(6) of the Wild Life (Protection) Act 1972. If we do not receive a reply within 7 days, we shall presume no such permission has been given. Our next course of action would be based on this presumption.

We shall be obliged if a reply is given.

Thanking You,

Yours Sincerely,



Mahalakshmi Parthasarathy
 Research Associate

CC: The Chief Secretary, Karnataka.
 The CCF (Central), MoEF, Bangalore

NAGARIKA SEVA TRUST
 (Environment Support Group Project)
 Grace Villa, No 514, 7th main, 5th cross,
 HMT Layout, RT Nagar, Bangalore - 560 032
 Phone & Fax: 080 - 3336721
 Email: nst@vsnl.com

Registered A/D

20th Sept 1999

The Principal Chief Conservator of Forests (Wild Life)
 Aranya Bhavan, 18th Cross,
 Malleshwaram,
 Bangalore-560 003.

Dear Sir,

Sub: Regarding Temporary Working Permit for mining to Kudremukh Iron Ore Company Limited.

Ref: Your Letter dated 06/09/99

Thank you for your letter dated 6/9/99, clarifying that the permission of the Chief Wild Life Warden under 35(6) of the Wild Life (Protection) Act 1972 (WLPA) is not necessary, as the 35(6) is applicable only after the final notification of the National Park is issued.

However as we understand if either a forest or any other land is included within the National Park despite the fact that the final notification has not been issued the provisions of WLPA excluding those of settlement rights are applicable in this regard. We have a legal opinion given to the Government of Madhya Pradesh from a legal advisor on this matter I am enclosing a copy for your reference.

Further according to Section 20 of WLPA there is a bar on the accrual of rights after the declaration of the intention of the Government to constitute an area as a Sanctuary (Sec 18) or a National Park (Sec 35(1)). Section 20 reads: "Bar of accrual of rights: After the issue of notification has been issued under Sec 18 no right shall be acquired in, on or over the land comprised within the limits of the area specified in such a notification except by succession, testamentary interstake." This has to be read with Section 35(3) of the WLPA which includes this provision (cf Section 20) for a National Park also. Therefore renewal of the mining lease of KIOCL to mine within

the National Park limits after the notification of intention (Section 35(1)) is an accrual of right, other than succession, testamentary interstate, which is barred by law.

Lastly we would also like to know whether in your opinion Section 32 of the WLPA which prohibits the use of explosives within a National Park also does not apply till the final notification is effected.

We would appreciate your opinion on the above matters.

Looking forward to hearing from you.

Thanking you,

Yours Sincerely

MahaPaks

Mahalakshmi Parthasarathy
Research Associate.

KUDREMUKH

IRON ORE COMPANY LIMITED

(A Government of India Enterprise)

KUDREMUKH-577142.

Dist Chikmagalur (Karnataka)

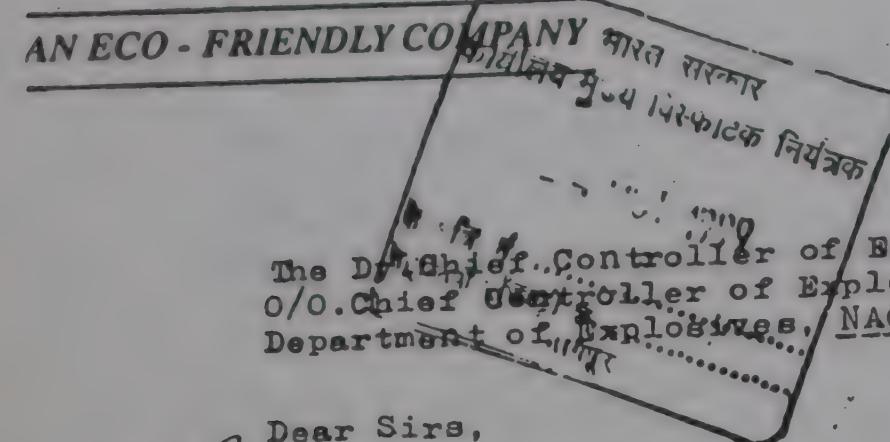
Telegrams. KUDREORE

Telex 0845-2505

Tele Fax 08269-54117

Telephone 08269-54148

AN ECO - FRIENDLY COMPANY



Dear Sirs,

Sub : Objections regarding Renewal of Explosives Licences.

Ref : Your letter No.G.40(SC)E/Misc/ Ministry, dated.10.09.1999.

-x-x-x-x-x-x-x-

With reference to the above, we submit our comments as under:

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KIOCL has been given Temporary Working Permission for already broken up area for a period of one year subject to the following studies being taken up by the Company.

- Environment Impact Assessment by NEERI,
- Impact on Wildlife by Wildlife Institute of India, Dehradun.

Copy of the letter issued by Deputy Conservator of Forests, Kudremukh Wildlife Division, Karkala is enclosed herewith for ready reference please.

The Company has already taken up the matter with both NEERI and Wildlife Institute of India, Dehradun for undertaking the studies. While order has been placed on NEERI, Nagpur to take up the study on Environment Impact Assessment the representatives of Wildlife Institute of India is expect to visit Kudremukh by first week of October, 1999 for assessing the extent of work.

Registered Office: II Block, Koramangala, Bangalore - 560 034

पंजीकृत कार्यालय: II ब्लॉक, कोरमंगला, बैंगलोर - 560 034

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ECOLOGY - OUR MISSION OUR OBSESSION

KUDREMUKH
COMPANY LIMITED



(16)
Continuation
Sheet

- 2 -

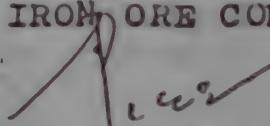
Subject to the above, the mining is to be carried out for the next one year. It may be noted that mining activity can be undertaken without blasting, use of explosives and other accessories.

In view of the above, it is felt that the renewal of licences mentioned in the letter referred above granted to KIOCL is justified and further renewal is also be necessary.

This is for your information please.

Thanking you,

Yours faithfully,
for KUDREMUKH IRON ORE COMPANY LIMITED.,


(U.A.PIKLE)
ADDITIONAL GENERAL MANAGER(MINES).

भारतीय विस्फोटक, नाम्पुर
Teleg. :
"EXPLOSIVES", Nagpur
टेलिफोन }
टेलिफोन }

क्रमांक 40 (SC) E/Misc/Ministry
No.

भारत सरकार
GOVERNMENT OF INDIA
विस्फोटक विभाग
DEPARTMENT OF EXPLOSIVES

कार्यालय उद्देश के सभी पत्रादि "द्रव्य विस्फोटक विभाग" के प्रदेश में भेजे जाएं, उनके अधिकार नाम से नहीं।

All communications intended for the office should be addressed to the "Chief Controller of Explosives" and NOT in its name by name.

28.9.99

To

28 SEP 1999

Smt. Mahalakshmi Parthasarathy,
Research Associate,
Nagarika Seva Trust,
(Environment Support Group Project)
Grace Village, No.514, 7th Main, 5th Cross,
HMT Layout, RT Nagar,
Bangalore-560 02

Sub: Objection regarding renewal of magazine licences and use of explosives by Kudremukh Iron Ore Company Ltd.(KIOCL)within Kudremukh National Park.

Madam,

Please refer to your letter dated 16.9.99 addressed to this office and letter dated 12.8.99 addressed to Jt. Chief Controller of Explosives, South Circle, Chennai.

In this connection, I am to inform you that the Ministry of Industry, Department of Industrial Development, New Delhi, vide their letter dated 2.8.99 has also referred the subject matter to this office. On receipt of your letter and Ministry's reference, a letter of even number dated 10/16-9-99 was addressed to KIOCL requesting them to furnish their comments by return of post. The comments from the KIOCL are still awaited. However, in the mean while I would like to inform you that the explosives licences mentioned in your letter dated 12.8.99 granted on 15.11.78 which were issued well before the notification made on 2.9.97 for Kudremukh National Park. The above licences were also issued by this Department under the provisions of Explosives Act, 1884 and Explosives Rules framed thereunder, on receipt of necessary clearance and no objection certificates from the concerned district authorities as required under the rules. Under the Explosives Rules, 1983, the CCE cannot cancel any licence granted, unless violations of the conditions of the

licence or provisions of Explosives Act and Rules are noticed. However, the matter has been referred to the Administrative Ministry of this Department and further comments in this respect will follow from the above Ministry, on receipt of reply from KIOCL.

Yours faithfully,

ના. ન. વલ્ડેકર
(N.N.Waldekar)
Dy. Chief Controller of Explosives
for Chief Controller of Explosives 7



सुरेश पी. प्रभू
SURESH P. PRABHU

राष्ट्रीय संगठन
M.F.R.

15-72/25

ANNEXURE -

मंत्री
पर्यावरण एवं वन
भारत सरकार
नई दिल्ली-110003
MINISTER
ENVIRONMENT & FORESTS
GOVERNMENT OF INDIA
NEW DELHI-110003

2 10.10.1999

Dear Shri Parthasarathy,

This is to acknowledge the receipt of your letter dated the 16th September, 1999 regarding temporary working permission to Kudremukh Iron Ore Company Ltd.

I have forwarded your letter to Mr. M.K. Sharma, Addl. Inspector General of Forests (FC) of my Ministry, Parivar Bhawan, CGO Complex, Lodhi Road, New Delhi – 110 003, for necessary action.

For further information/assistance, you may write directly to the concerned officer at the above address.

With regards,

Yours sincerely,

(SURESH P. PRABHU)

Shri Mahalakshmi Parthasarathy,
Research Associate,
Nagarika Seva Trust,
Grace Villa, No.514, 7th Main, 5th Cross,
HMT Layout, RT Nagar,
Bangalore – 560 032.

PRINCIPAL CHIEF CONSERVATOR
OF FORESTS.

15(B3)GFL.CR.231/92-93.

"Aranya Bhavan",
Mallewaram,
Bangalore-3.

Dated: 17/9/1997.

T.

The Principal Secretary to Government,
Department of Forests, Ecology
and Environment, M.S.Building.
BANGALORE.

Sir,

S'bhg:- The proposal of Kudremukh Iron Ore Company Ltd., for raising the height of Lakya Dam - violation of Forest (Conservation) Act 1980.

Ref:- 1) Government of Karnataka's letter No.FEE.43.FFM.93, dated 28-10-94 along with the Govt. of India letter No.8-66/94-FC, dtd: 6-9-94.

2) Government letter No.FEE.43.FFM.93, dated 8-8-96.

3) Government letter No.FEE.43.FFM.93, dated 7-4-97 enclosing Government of India letter dated 13-3-97.

-.-.-

In continuation of this office letter of even number dated 8-10-96, the following few facts are brought to your kind notice for favour of needful action.

M/s. Kudremukh Iron Ore Co. Ltd., have increased the height of Lakya Dam submerging the additional forest land of 340 ha. without obtaining the prior approval of Government of India, u/s Section 2 of the Forest (Conservation) Act and this is a clear case of violation of the Act and it attracts penal y. The violation of the provisions of Forest (Conservation) Act 1980 has been brought to the notice of the Company, but the Company is not ~~honouring~~ honouring the Government Orders and have not acted upon them. A chance of hearing was given to the Company and the Government of India was moved to accord ex post facto approval. But, the Government of India in its letter dated 13-3-97 has asked the

...2/-

State Government to fix the responsibility for violation. In the present case the management of M/s. Kudremukh Iron Ore Co. Ltd., is responsible for the violation. Though the Company has been intimated and requested to pay the cost of normal & penal compensatory plantation of Rs.3.06 crores, the Company has not paid the same. Also the Company is requested to pay an amount of Rs.5.00 crores for the development of Kudremukh National Park in the Government Order when the forest area of Nellibedu was leased for prospecting of Iron Ore by the Company. The Company has hardly paid Rs.1.00 crore. The Karnataka Cashew Development Corporation has raised plantations in areas falling within the National Park by investing huge amounts. Though the plantations are due for harvest, the Chief Wildlife Warden has not accorded the permission for extraction and the plantations in the National Park will be retained. The Karnataka Cashew Development Corporation is entitled to receive the cost on plantations to the tune of Rs.3,31,17,203/-. The Government decided to pay this amount after recovering the same from M/s. Kudremukh Iron Ore Company Ltd., as the raising of plantations have lead to development of the National Park. The Company had been requested to pay this amount through Demand Draft drawn in favour of Principal Chief Conservator of Forests, Bangalore, but, it is regretted that the Company has not responded inspite of several promises and phone calls to the Company Secretary of M/s. Kudremukh Iron Ore Company Ltd. This is a clear violation of the Government Order as the Company has failed to pay the amount.

In view of the above, the following actions are required to be initiated against the Company. :

1. Prosecution of Management of the Company for violation of Forest (Conservation) Act in increasing the height of Lakya Dam and submerging the additional forest area to the tune of 340 ha.

2. Cancellation of the Mining Lease No. 909 ^{as} a penal action and not to renew the lease thereafter which will expire on 24-7-99.
3. The Dam height is to be reduced to recover the additional forest land submerged to the extent of 340 ha.
4. Recovery of cost of vegetation submerged due to increase in height of Lakya Dam.
5. Any other action the Government deems fit.

However, before the lease is cancelled an opportunity of being heard need be given to the Company. In this connection the Government had already issued the show cause notices to M/s. Kudremukh Iron Ore Company Ltd., in its letter dated 30-5-96 and the Company's reply dated 15-7-96 is received by the Government. Further, the Company has been issued the notice vide this office letter dated 5-5-97 (copy enclosed) which is self explanatory and in response to this, the Company has replied vide its letter dated 20-5-97 (copy enclosed). Replies furnished by the Kudremukh Iron Ore Company Ltd., that no violation of the Forest Rules has been committed and Company's request to withdraw the demand for payment of Rs.3.06 crore towards the cost of normal/penal compensatory plantation (3 times to 340 ha. additional forest area submerged due to increase of Lakya Dam height) can not be accepted. Further, clarification asked by the Kudremukh Iron Ore Company Ltd., in its letter dated 20-5-97 has also been replied by this office letter dated 30-6-97 (copy enclosed).

Since, the Company has not paid the cost of compensatory afforestation of Rs.3.06 crore and has also failed to pay Rs.3.31 crore as explained above towards development of Kudremukh National Park, there is no need for further notice.

...4/-

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and the Company may be proceeded against straight way.
Early action is requested in the matter.

Yours faithfully,

Sd/-

PRINCIPAL CHIEF CONSERVATOR OF FORESTS.

Copy with compliments to the Chief Conservator of
Forests (Wildlife), Aranya Bhavan, Bangalore for information.

Copy with compliments to the Chairman & Managing
Director, Kudremukh Iron Ore Company Ltd., Bangalore for
information. It is regretted that the undersigned is
constrained to write as above to the Government in the
circumstances explained therein.

14/19
PRINCIPAL CHIEF CONSERVATOR OF FORESTS.

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Irrigation Department

Sub:- Committee constituted by Kudremukh Iron Ore Company Limited to enquire into the damage caused to spillway of Lakya Dam.

GENERAL ORDER NO. 12 23 MM 21(P), BANGALORE, DATED 8-9-92.

REASON: S.O. letter No. 1087/CMD/K, dated 5-8-1992 from the Chairman-cum-Managing Director, Kudremukh Iron Ore Co. Ltd., Bangalore.

PROBLEMS:

- 1) In the letter read above, the Chairman-cum-Managing Director, Kudremukh Iron Ore Co., Ltd. (KIOCL) has, intimated as follows:
 - a) The KIOCL, have constituted a Committee, under the Chairmanship of the Executive Director, KIOCL, to enquire into the circumstances leading to the damage caused to the spillway of Lakya Dam, in Chickmaglur District.

Among others, a Representative from the Central Water Commission, Ministry of Water Resources, Government of India and a Representative from the Government of Karnataka have been included as members of this Committee. The terms of reference of the Committee are as follows:

 - i) To enquire into the circumstances that led to damage caused to the temporary spillway over the Lakya reservoir.
 - ii) To assess the damage caused.
 - iii) To assess the quantum of financial loss incurred in this regard, direct and indirect.
 - iv) To assess the adequacy of measures taken prior and subsequent to the damage caused to the spillway.
 - v) To determine the agencies responsible for the lapses, if any, and to fix responsibility, if any, in such an event.
- 2) The Chairman-cum-Managing Director, KIOCL, has requested that a Representative from the Irrigation Department of Karnataka, be nominated as Member of this Committee.
- 3) Considering the vast experience of Sri. M. Shivananda, Engineer-in-Chief and presently working as Managing Director, Karnataka State Construction Corporation, in the field of Irrigation and also the fact that he has visited Lakya Dam recently. Assessed the situation there and advised the KIOCL,

on the necessary remedial measures, it is felt desirable to nominate Sri. M. Shivananda as the Representative on behalf of the Government of Karnataka, in the Committee constituted by the KIOSL.

4) This letter has been examined at Government level.

O R D E R

Shri. M. Shivananda, Engineer-in-Chief and presently working as Managing Director, Karnataka State Construction Corporation, is nominated as a Representative of Government of Karnataka, in the Committee constituted by Kudremukh Iron Ore Company Limited, (KIOSL), to enquire into the circumstances leading to the damage caused to the spillway of Lekya Dam in Chickmagalur District.

By Order and in the name of the
Governor of Karnataka.

(H. SESHADRI) 8.9.92
Under Secretary (Tech-2) to Govt.,
Irrigation Department.

- 1) The Accountant General (Audit/Accounts), Karnataka, Bangalore.
- 2) Shri. M. Shivananda, Managing Director, Karnataka State Construction Corporation, Bangalore.
- 3) The Chairman-cum-Managing Director, M/s. Kudremukh Iron Ore Company Limited, II Block, Koramangala, Bangalore.
- 4) DS to the Hon'ble Minister for Major & Medium Irrigation.
- 5) DS to the Hon'ble Minister of State for Minor Irrigation.
- 6) DS to the Chief Secretary to Government of Karnataka.
- 7) The Secretary to the Chief Minister, Vidhana Soudha.
- 8) The Secretary to Government, Irrigation Department, Bangalore.
- 9) The Secretary to Government, PWD, M.S. Buildings, Bangalore.
- 10) Chief Engineer, WCD, Bangalore.
- 11) Deputy Secretary-I to Government, Irrigation Department.
- 12) Officer on Special Duty, Irrigation Department.
- 13) Weekly Gazette/W.O. file/Spare Copies.

Government Data Confirms Silting of Bhadra River by K.I.O.C.L.

Report by:

Urban Research Centre,
Nagarika Seva Trust
and

Institute for Natural Resources Conservation, Education and Training

For Further details contact: K.V. Narendra 3346271, P.Mahalakshmi 3535532, S.Sridhar 3364682

Report Dated 7th July 2001

After relentless efforts, we have been able to obtain the Government document "A note on the siltation of Bhadra river due to mining activities in Kudremukh".

This document was prepared by the Director (Chief Engineer), Karnataka Engineering Station, Krishnarajasagara, Irrigation Department, Government of Karnataka. This report is an analysis of the data collected by the officials of K.E.R.S. and W.R.D.O. (Water Resources Development Organization, Irrigation Department, Government of Karanataka), between 1-8-90 and 25-6-93, at four points across River Bhadra, just downstream of the Kudremukh Mining area.

The data has revealed shocking facts that the mining activities have contributed much to the siltation of Bhadra River and the Bhadra Reservoir.

Siltation exceeds prescribed limits by 30 to 40 times !

The data has revealed that the silt load has exceeded the prescribed limits of 100mg/l by 30 to 40 times (3000 to 4990 mg/l) on many occasions, especially during the monsoon months. For e.g.:

* On 22.9.90 the silt content was 2748mg/l and 2247 mg/l in two sampling points. It exceeded the prescribed limits by 27 and 22 times respectively.

* On 24.7.92 the silt content was 49 times more then the prescribed limits at the sampling point A. This happened soon after the collapse of the side walls of the spillway of Lakya Dam during June 1992. Soon after the heavy rains, the overflowing sediments from the damaged Lakya dam, reached the small streams and were washed with the flood waters to the Singasagara Halla. The silt content reached 4990 mg/lt, when sampled on 24.7.92 at the sampling point A (see map).

The three year random sampling by the Government has revealed that the waterflow from the mining area to River Bhadra had carried more than 500 mg/l (Five times more than the prescribed limit of 100mg/l) on atleast 100 different occasions.

This in turn has contributed significantly to the siltation of Bhadra Reservoir as confirmed by the S.T.A.C. Sub Committee Report. The Report cited the recorded silt load in River Bhadra just down stream of mining (Malleswara Gauging Site) to be as high as 2,700 metric tonnes per month. It is also reliably learnt that the Tungabhadra reservoir authorities have stated that the capacity of the reservoirs has already reduced by 28% or more, due to siltation and sediment inflow.

In the KERS report, the Chief Engineer has confirmed that:-

"Inspite of these precautionary measures, it is felt that siltation in Bhadra River has increased owing to heavy mining operations in the catchment area, which was also supported by the silt gauging from August 1983 near Malleswara, just downstream of the mining area. Based on this gauging data, the S.T.A.C. Sub-Committee for Bhadra Project, under the Chairmanship of Chief Engineer, Irrigation Central Zone, Munirabad and Superintending Engineer, P & I, W.R.D.O., as Member Secretary had come to the interim conclusion that despite elaborate arrangements made by the Kudremukh Iron Ore Company Limited for arresting the silt, containing ore tailings, it has been observed that the river Bhadra passing in the vicinity of Kudremukh Iron Ore area carries heavy silt."

Accordingly, the water samples collected at four points by W.R.D.O. authorities were tested by the K.E.R.S., K.R.Sagara from July 1990 to July 1993. These samples have been tested and the results submitted from time to time and enclosed vide annexure. The results do not have a definite trend from year to year and are varying very much with reference to sites also or in other words the results are not confirmatory. The value of the silt content varies, the minimum value being 1 (one) mg/litre and the maximum value is 4,999 mg/litre. This may be due to some discrepancy in collection and transportation of the water samples. Since K.E.R.S., was only conducting testing of the water samples the reasons for this variation could not be explained.

During the inspection (on 10.02.94) of Kudremukh mining area near Malleswara and its surroundings, the following observations were made:-

(1) The point (A) has been selected by Water Resources Development Organisation as free from the mining activities (before mining area). But it has been noticed that just above this point, on the upstream side, a tributary called Singasagarahalla, joins river Bhadra. It was noticed, that at the 5th K.M. on the Kudremukh, S.K. Road, a cognizable amount of silt deposit was found in the river bed.

It is noticed that this silt may be due to the Kudremukh mining activities. Hence it is felt that the very purpose of selecting the upstream point i.e., point A, is defeated, because there is every likelihood of getting the silt, whenever there is a heavy discharge from Singasagarahalla. The actual origin of the silt, coming to Singasagarahalla could not be traced, inspite of efforts, as the area was inaccessible.

(2) The point (B), which had been located on the spill-way of Lakya Dam, is completely closed from July 1992, after the collapse of the side walls near the spillway. Hence no observations could be made at point B. However after the closure of the spillway, the excess water is being diverted through a Tunnel, on the upstream side of the Lakya Dam. The discharge is lead through a tunnel to the Kunnihalla Valley, which further joins the river Bhadra, within the Kudremukh Iron Ore Company area. The point where this discharge joins the river Bhadra is above the point C.

(3) the point (C) is located near the Malleswara Bridge. Here the observation reveals that the water was not clear when compared to the point A. Hence, it has to be inferred that this variation may be due to the mining activities.

(4) The point (D) is located on the downstream of the Malleshwara Bridge of Bhadra River. At this point the water is clearer when compared to the water at point C. It has to be inferred that the change may be due to the dilution of silt, because of the two tributaries that joins the river Bhadra between point C point D. The total catchment area of these two tributaries is about 264×10^5 Sq. meter (26.4 Sq. Kms).

Regarding the remarks made by the authorities of M/s Kudremukh Iron Ore Company Limited (in their letter dated 28.02.1991), that the silt coming to Bhadra River may be due to the extensive excavation carried out by the Forest Department, Karnataka Cashew Development Corporation and other private planters, the enquiries made locally reveal that such major activities are not taking place. However, this has to be ascertained from the concerned Government Departments to gather more information in this regard.

From the above assessment, it has to be inferred, that though silt is coming into the Bhadra river from the points A to D, definite reasons, i.e., whether it is due to mining operations or otherwise, cannot be made. The test results of water samples also do not give any guidance to arrive at any conclusion in this regard.

Further it has been stated by the Kudremukh Iron Ore Company limited that as per the tests being done on their behalf, the silt content in the river is within limits. All the above aspects are conflicting and hence it is felt that it will be better if the testing of water samples is continued for some more period. If necessary, the location of sites may have to be changed. It is better that Water Resources Development Organisation, Karnataka Engineering Research Station and Kudremukh Iron Ore Company Limited are jointly involved in this venture. If Kudremukh Iron Ore Company Limited refused to involve, at least the location where the water samples being collected, nature of tests done and the analysis report of data has to be obtained from them for a detail study. Water Resources Development Organisation to be in charge of collection of water samples as they are incharge of gauging of river. A time bound programme have to be drawn for this study, for assessment of silt load in Bhadra River".

Non Co-operation from KIOCL

The KIOCL has refused to co-operate with the State Government under the pretext that they have their own system to collect and test water samples and their own results have shown that the silt content is within limits. (See table II, Comparison of silt data submitted by the Company and the Government). The KIOCL has maintained that their mining activities have never contributed to the siltation of the Bhadra Dam, but has blamed the Karnataka Forest Department and the Karnataka Cashew Development Board and other private planters, for contributing to the siltation process by their excavations to plant the trees!

When letters were sent by WRDO to KIOCL to co-operate with the Government authorities, the local KIOCL officials washed off their hands under the pretext that they have not received any directions from their head office at Bangalore and therefore they are not prepared to co-operate with the Irrigation Authorities, in any issue relating to the study of siltation of the Bhadra Reservoir!

This has once again exhibited the KIOCL's scant respect not only for the state Government's directives, but also the welfare and protection of River Bhadra, which has led to the homogenous deterioration of the river system over the years. The Company is only interested in making huge profits at the cost of

A NOTE ON SILTATION IN BHADRA RIVER DUE TO MINING ACTIVITIES
IN KUDREMUKH

The Bhadra Reservoir across river Bhadra was commissioned in 1956. The total catchment area of the Bhadra Reservoir upto the dam site near Lakkavalli is 1968.40 Sq. Kms.

The Kudremukh Iron Ore Company Limited coming in the catchment area was established in 1976 and the project was commissioned in 1980. About 5000 million tonnes of Iron Ore has been estimated as available.

To arrest silt, so as not to enter the river by mining operation, an earthfill dam has been built across Lakya River, a tributary to Bhadra River, during 1979, which has a storage capacity of 90 million cum and a tailings storage capacity of about 120 million tonnes. Two rock fill dams have also been constructed as check dams across crusher valleys to arrest silt.

Inspite of these precautionary measures, it is felt that siltation in Bhadra river has increased owing to heavy mining operations in the catchment area, which was also supported by the silt gauging from August 1983 near Malleswara, just downstream of the mining area. Based on this gauging data, the S.T.A.C., Sub-Committee for Bhadra Project, under the Chairmanship of Chief Engineer, Irrigation Central Zone, Munirabad and Superintending Engineer, P & I, W.R.D.O., as Member Secretary had come to the interim conclusion, that despite elaborate arrangements made by the Kudremukh Iron Ore Company Limited for arresting the silt, containing ore tailings, it has been observed that the river Bhadra passing in the vicinity of Kudremukh Iron Ore area carries heavy silt.

In the 27th meeting of S.T.A.C. (Soil Conservation) held on 29.8.89 at Bangalore, discussed about the reasons for high rate of siltation and desired that an action plan have to be

prepared for arresting siltation in Bhadra River and a technical report to be prepared by the Director, Karnataka Engineering Research Station, based on the data collected by Water Resources Development Organisation and Karnataka Engineering Research Station for bringing out the details of the increase of siltation in Bhadra Reservoir. Also a suggestion was made in the meeting to gauge the river Bhadra just upstream and downstream of the Kudremukh mining area as it is felt that large quantities of silt is entering the river Bhadra during monsoon and the system provided to arrest the silt is not efficient in function. Hence it was suggested that more water samples have to be collected jointly and analysed for sediment load during the first flood of the monsoon and frequently during monsoon, at four places so that difference between the first and last site give an indication on the nature and extent of silt load. The Director, Karnataka Engineering Research Station, K.R.Sagara desired to gauge the tributaries also, in addition to Malleswaram bridge located just downstream of Kudremukh area, but mentioned to the Chief Engineer, Water Resources Development Organisation to examine this aspect.

The Director, Karnataka Engineering Research Station, was requested to collect samples jointly and conduct the sedimentation test with Kudremukh Iron Ore Company Limited.

The Director, Karnataka Engineering Research Station, suggested that Chief Engineer, Water Resources Development Organisation should be requested for the river gauging work, while the testing of water samples sent by W.R.D.O., will be undertaken by K.E.R.S. Regarding preparation of technical report, for increase in siltation, it has been reported by the Director during March 1991, that at least three years of testing of water samples is to be done to draw any conclusion.

The Chief Engineer, Irrigation Central Zone, Munirabad, addressed Kudremukh Iron Ore Company Limited for collection

of water samples, jointly at selected places, in upstream and downstream of mining area and in the mining area for analysing the same for silt load. The Kudremukh Iron Ore Company Limited authorities has clarified that they were associating with Chief Engineer, Irrigation for joint collection of water samples of Bhadra river upto October 1990 and this has been stopped, since the Irrigation personnel discontinued visiting Kudremukh and further informed that they have their own system to collect and test water samples, and these test results have shown that the silt content is within limits. They also stated that the siltation in Bhadra river may be due to extensive excavation being done by the Karnataka Forest Department, Karnataka Cashew Development Corporation and other private planters.

Since Kudremukh Iron Ore Company Limited informed to Chief Engineer, Water Resources Development Organisation that they have no information from their head office at Bangalore and as already they are getting the silt analysis of water samples done, they are not prepared for joint venture of collecting water samples. As such three sites were finalised by Chief Engineer, W.R.D.O. They are as follows and also an index map showing these sites is enclosed.

Point A : A point on Bhadra River where river Bhadra is free from mining operation.

Point B : Just below the spillway of Lakyā Dam.

Point C : A point on river Bhadra below Malleswaram Bridge

Point D : In addition to these sites, the Malleswaram bridge site, where normally samples for testing sedimentation is being done and is proposed by Chief Engineer, Munirabad.

The difference between D and A will give the contribution of silt load owing to the mining operation by Kudremukh Iron Ore Company Limited.

Accordingly water samples collected at the above four points by W.R.D.O. authorities were being received at K.E.R.S., K.R.Sagara from July 1990 to July 1993. These samples have been tested and results submitted from time to time and enclosed vide annexure. The results do not have a definite trend from year to year and are varying very much with reference to sites also or in other words the results are not confirmatory. The value of the silt content varies, the minimum value being 1(one) mg/litre and the maximum value is 4,999 mg/litre. This may be due to some discrepancy in collection and transportation of the water samples. Since K.E.R.S., was only conducting testing of the water samples the reasons for this variation could not be explained.

The value at point A was more than the value at the point D which indicates that rate of silting is more in the initial reaches of the river though the area is free from mining operation. Since K.E.R.S., was conducting testing of samples only, the reasons for these discrepancies could not be explained and conclusion also could not be arrived at. Hence it was felt, better to inspect all the water sample collection points, to have a field assessment of the conditions at the sites.

These sites were jointly inspected during February 1994 both by the authorities of K.E.R.S., and W.R.D.O., and the findings of the field assessment are as follows.

During the inspection (on 10.02.94) of Kudremukh mining area near Malleswara and its surroundings, the following observations were made:-

(1) The point (A) has been selected by Water Resources Development Organisation as free from the mining activities(before mining area). But it has been noticed that just above this point,

on the upstream side, a tributary called Singasagarahalla, joins river Bhadra. It was noticed, that at the 5th K.M. on the Kudremukh - S.K.Road, a cognizable amount of silt deposit was found in the river bed.

It is noticed that this silt may be due to the Kudremukh mining activities. Hence it is felt that the very purpose of selecting the upstream point i.e., point, A, is defeated, because there is every likelihood of getting the silt, whenever there is a heavy discharge from Singasagarahalla. The actual origin of the silt, coming to Singasagarahalla could not be traced, inspite of efforts, as the area was inaccessible.

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(3) The point (C) is located near the Malleshwara Bridge. Here the observation reveals that the water was not clear when compared to the point A. Hence it has to be inferred that this variation may be due to the mining activities.

(4) The point (D) is located on the downstream of the Malleshwara Bridge of Bhadra River. At this point the water is clearer when compared to the water at point C. It has to be inferred that the change may be due to the dilution of silt, because of the two tributaries that joins the river Bhadra between point C point D. The total catchment area of these two tributaries is about 264×10^5 Squaremeter (26.4 Sq.Kms).

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From the above assessment it has to be inferred, that though silt is coming into the Bhadra river from the points A to D, definite reasons, i.e., whether it is due to mining operations or otherwise, cannot be made. The test results of water samples also do not give any guidance to arrive at any conclusion in this regard.

Further it has been stated by the Kudremukh Iron Ore Company Limited that as per the tests being done on their behalf, the silt content in the river is within limits. All the above aspects are conflicting and hence it is felt, that it will be better if the testing of water samples is continued for some more period. If necessary the location of sites may have to be changed. It is better that Water Resources Development Organisation, Karnataka Engineering Research Station and Kudremukh Iron Ore Company Limited are jointly involved in this venture. If Kudremukh Iron Ore Company Limited refused to involve, at least the location where the water samples being collected, nature of tests done and the analysis report of data has to be obtained from them for a detailed study. Water Resources Development Organisation to be in charge of collection of water samples as they are incharge of gauging of river. A time bound programme have to be drawn for this study, for assessment of silt load in Bhadra River.

M/
Director (Chief Engineer)
Karnataka Engineering Research Station
Krishnarajasagara.

TABLE I

SILT FLOW TO RIVER BHADRA FROM KUDREMUKH MINING AREA

Date of Collection	Sampling Locations (See Map)				Remarks
	A	B	C	D	
	Silt in mg/l	Silt in mg/l	Silt in mg/l	Silt in mg/l	
02.07.90				877	
05.07.90		604			
28.07.90				694	
16.08.90		279	848	1747	
28.08.90			712		
04.09.90				1370	
05.09.90		895			
06.09.90				967	
20.09.90			1315	916	
22.09.90			2748	2247	
04.10.90				739	
10.10.90	2284				
13.06.91			962	756	
08.07.91			348	1062	
22.07.91				1966	
26.07.91			2653		
12.08.91				623	
16.08.91				597	
17.08.91				665	
27.08.91			1088		
30.06.91			784		
31.08.91			1465	2390	
03.09.91	1097		1372		
19.09.91				1305	
01.10.91			1247		
08.10.91			675	559	
22.10.91				653	
29.10.91			841		
15.06.92		Lakya Dam closed Due to collapse of Sidewalls of Spillway in June 1992	768		
16.06.92				690	
19.06.92			974		
20.06.92			1124	825	
22.06.92	712		1124		

Date of Collection	A	B	C	D	Note
	Silt in Mg/L	Silt in Mg/L	Silt in Mg/L	Silt in Mg/L	
23.06.92					
30.06.92				820	
04.07.92				1902	
06.07.92			1667-	875	
14.07.92			968		
20.07.92	533		1303		
21.07.92	781		1089		
22.07.92	1740			2250	
23.07.92	1218			2786	
24.07.92	4999				
28.07.92			1080	1327	
19.0.92			1295		
21.08.92	1955				
24.08.92			1190		
01.09.92			1295		
03.09.92				766	
05.09.92	914		807		
07.09.92				2660	
08.09.92			688	554	
15.09.92			1546		
17.09.92	1271				
23.09.92			1991		
24.09.92			2850	635	
25.09.92			1820		
08.10.92	806		670	687	
15.10.92				830	
22.10.92			872		
07.01.93			775		
28.01.93	654				
18.02.93	995				
11.03.93	605			753	
18.03.93	716			672	
16.04.93	1389			656	
07.05.93				890	
28.05.93			1138		
21.06.93					

Note : Only Details of test results exceeding 500 mg/l have been extracted from the original table.

(Sd/-)
Director (Chief Engineer)
Karnataka Engineering Research Station
Krishnarajasagara

Table II
Comparison of Silt Data of Company (KIOCL) and Govt. (KERS)

Date of Collection	Kudremukh Data		Government KERS Data				Remark
			Sampling Points (See Map)				
	UP Stream	D/S	A	B	C	D	
05.07.90	10	20	1	604	68	306	Note : The maximum tolerance limit of suspended solids as per IS 2400 (Part-I) is 100 Mg/Lt.
11-7-90	10	93	4	8	68	378	
28.07.90	5	9	NA	17	NA	694	
08.08.90	3	5	13	6	9	573	
14.08.90	25	72	5	5	192	223	
28.08.90	1	28	2	3	712	116	
05.09.90	3	28	5	895	35	370	
12.09.90	2	8	NA	180	NA	318	
10.10.90	2	5	2284	62	95	233	
29.10.90	4	12	343	6	707	12	
13.06.91	9	21	13	4	962	756	

Note :
 All figures in Mg/l.
 NA – Not available

STATEMENT SHOWING SUSPENDED SOLIDS, FE CONTENT IN BHADRA UPSTREAM
AND DOWN STREAM

Date	Suspended solids		Fe content	
	Upstream of Bhadra	D/S of Bhadra	U/S	D/S
22.6.90	15	28	0.25	0.4
23.6.90	6	89	0.05	0.3
27.6.90	8	68	0.1	0.5
30.6.90	19	42	0.4	0.2
5.7.90	10	20	Traces	0.3
11.7.90	10	93	Traces	0.5
14.7.90	7	33	Traces	0.5
18.7.90	6	10	Traces	0.6
21.7.90	5	9	Traces	Traces
1.8.90	6	8	Traces	Traces
6.8.90	3	5	Traces	Traces
14.8.90	25	72	Traces	Traces
21.8.90	1.0	20	Traces	Traces
28.8.90	6	77	Traces	Traces
5.9.90	3	28	Traces	Traces
12.9.90	2	8	Traces	Traces
19.9.90	5.2	6 <8-	Traces	Traces
16.9.90	3	6	Traces	Traces
26.9.90	2	5	Traces	Traces
3.10.90	3	4	Traces	Traces
10.10.90	2	5	Traces	Traces
17.10.90	3	7	Traces	Traces
24.10.90	5	10	Traces	Traces
31.10.90	4	12	Traces	Traces
7.11.90	2	3	Traces	Traces
14.11.90	6	12	Traces	Traces
21.11.90	0	20	Traces	0.1

	1	2	3	4	5
10.3.91	10	20		Traces	0.15
27.3.91	10	15		Traces	0.1
22.4.91	11	14		Traces	Traces
28.4.91	8	11		Traces	Traces
32.5.91	5	9		Traces	Traces
15/5/91	8	32		Traces	0.2
13.6.91	9	21		Traces	0.5
19.6.91	6	10		Traces	Traces
26.6.91	12	52		Traces	0.5
5.7.91	6	10		Traces	Traces

15/11/21



ಕರ್ನಾಟಕ ರಾಜ್ಯಾಳ್ಯಂ

ಅಧಿಕೃತವಾಗಿ ಪ್ರಕಟಸಂಖ್ಯೆ
ವಿಶೇಷಾತ್ಮಕ

ಖಾಗ - IV-A

ಪ್ರಾಂತೀಯ, ಮೊಧುಕಾರ, ಮಾನ ನಂ. ೨೦೦ (ಫ್ರಾಂಕ್ ಇ. ಇ. ಪಂಚ ನಂ. ೨೧)

ನಂ. ೧೧೬೯

FOREST, ENVIRONMENT AND ECOLOGY DEPARTMENT

NOTIFICATION

No. FEE 270 FWL 99, Bangalore, Dated: 16th June, 2001

Whereas the Government of Karnataka in exercise of the powers conferred by sub section (1) of section 35 of the Wildlife (Protection) Act, 1972 (Central Act 53 of 1972) (hereinafter referred to as "The Said Act") declared its intention to constitute the area fully described in the Schedule to Government Notification No. AHFF 42 FWL 87, dated 02.09.1987, published in part IV-C (1) of the Karnataka Gazette dated 24th September 1987, as "KUDREMUKH NATIONAL PARK" for the protection, propagation and development of flora and fauna, and wildlife significance of the area.

2. And whereas through the Government Order No. FEE 58 FWL 1996 dated 10.03.1998 read with corrigendum No. FEE 58 FWL 96 dated 19.06.1998, the jurisdictional Assistant Commissioners of the respective Revenue Sub-Divisions have been authorized to take further necessary action under Sections 19 to 26 of The Said Act.
2. And whereas, the Assistant Commissioners, Chickmagalur, Pullur and Kundapur Sub-Divisions have complied with the provisions of proclamation, investigation and determination of rights as per Section 19 to 26 A of the Act, vide Notifications No. LND/CR/75/97-98 dated 10.08.1998 and 12-10-99, No. LAQ/CR/5/98-99 dated 10.8.1998 and 10.3.2000, and No. LAQ/CR/12/97-98 dated 10-08-1998 and No. LAQ/CR/17/97-98 dated 10-7-2000 respectively.
4. And whereas the period of preferring claims have elapsed and all claims have been enquired into and whereas all rights in respect of the Reserve Forests to be included in the National Park are already vested in the State Government.

And whereas the State Government has taken a decision to exclude from the proposed National Park an extent of 3703.55 hectares of Forest land in the South Bhadra State Forests of which 3203.55 hectares of land was leased to M/s. Kudremukh Iron Ore Company Limited and 500 hectares of submersion area of Lakya Dam.

Now, therefore, in exercise of the powers conferred by sub section (4) of section 35 of the Wildlife (Protection) Act, 1972 (Central Act 53 of 1972) the Government of Karnataka hereby declares that the area specified in the schedule excluding the areas within the limits of the area mentioned in the table below shall be comprised within the Kudremukh National Park and further declare that the said area shall be National Park called 'THE KUDREMUKH NATIONAL PARK' with effect from the date of publication of this notification in the official gazette.

SCHEDULE

Name of the Districts : Chickmagalur, Dakshina Kannada and Udupi
55328.798 hectares (Excluding 3703.55 hectares of forest land which is more fully described in the table below from 60032.348 hectares proposed under section 35 (1) of the Act as the National Park)

BOUNDARY DESCRIPTION

North: Starting from Northern tip of Narasimha Parvatha Reserve Forest (Boundary line of Chickmagalur and Shimoga Districts passes through this line) runs along the Northern boundary and along Tungabhadra State Forest Boundary line;

West: Along the Tungabhadra State Forest Western Boundary line and along South Bhadra boundary line and further along Naravi State Forest boundary line.

South: Along the boundary line of Naravi State Forest

East: Along the boundary line of Naravi State Forest and further along the Eastern boundary of Andar Reserve Forest and along the Sulligoduhalla stream and further along the boundary line till it reaches the starting point.

The National Park consists of forest blocks of Andar Reserve Forest and Naravi State Forest of Dakshina Kannada and Udupi Districts and Narasimha Parvatha Reserve Forest, Tunga Bhadra State Forest and South Bhadra State Forest of Chickmagalur District but exclude 3203.55 hectares of M/s. Kudremukh Iron Ore Company Limited old lease and certain other non-forest areas contained within the following coordinates

From point N 13° 15' 00" 4745.9 M to point N 13° 13' 23" E 75° 12' 50" from this later point E57.1 M to point N 13° 10' 00", E 75° 14' 00", from this point 4210.3 M to point N 13° . . . E 75° 16' 22", from this point 5400.9 M to point N 13° 12' 33", E 75° 17' 00", and from this point to the first point a distance of 5721.1 Metres (an area of 4605 hectares) and the Lakya Dam submersion area (an area of 500 hectares), making a total area of 5105 hectares.

The land use pattern of this area is as follows:-

TABLE

Sl. No.	Type of Land use	Survey Nos.	Total Area	(In Hectares)	
				Forest	Non-Forest
1	Mining	41,42,44	1129.21	1129.21	--
2	Mining & Township	50,104	455.59	137.25	318.34
3	Lakya Dam	57,59	203.62	174.25	29.37
4	Lakya Dam & Township	64	395.03	193.52	201.51
5	Township	73,74,77	662.31	348.21	314.10
6	Township & Plantation	75,97	402.20	221.26	180.94
7	Building & Plantation	120	74.35	15.79	58.56
8	Jamble & Plantation	138	260.22	184.86	75.36
9	Mining & Infrastructure	141	422.82	380.97	41.85
10	Mining, Waste Dump & Magazine Plantation	142	418.23	418.23	--
11	Private Lands		181.44	--	181.44
	SUB TOTAL		4605.02	3203.55	1401.47
12	Submerged area of Lakya Dam		500.00	500.00	
	GRAND TOTAL		5,105.02	3703.55	1401.47

The Right of way granted to Kudremukh Iron Ore Company Limited in 1977 for operational use and maintenance conveyed under the 30 M. right of way corridor and repair to the pipeline, safeguarding against possible environmental hazards by leakage of slurry in the park area, will continue.

The National Park shall not include any of the Revenue villages, patta lands, revenue lands, gomal lands and such other areas which do not form any part of the above mentioned State Forests and Reserve Forests. The encroached area ordered for regularization under Government Order No.FEE 5 FGL 90 dated 05.05.1997 falling under Kudremukh National Park is also excluded from the National Park. The various rights of way and rights of water as notified in C statements of the respective Reserve Forests shall continue.

By order and in the name of the Governor of Karnataka,

TM Krishnappa
Under Secretary to Government
Forest, Environment and Ecology Department,
Bangalore.



MALLESHWARA 1968 AND 1978 BEFORE AND AFTER KIOCL OPERATIONS

Courtesy - State of Environment Report 1985-1986 Cecil J. Saldanha

